SIP HISTORY:
1747 COLONIAL BEER

CRAFTING A
BELGIAN DUBBEL

PILSNER & FOAM:
CZECH REPUBLIC BEER TOUR

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THE HOW-TO HOMEBREW BEER MAGAZINE

JANUARY-FEBRUARY 2025, VOL. 31, NO. 1

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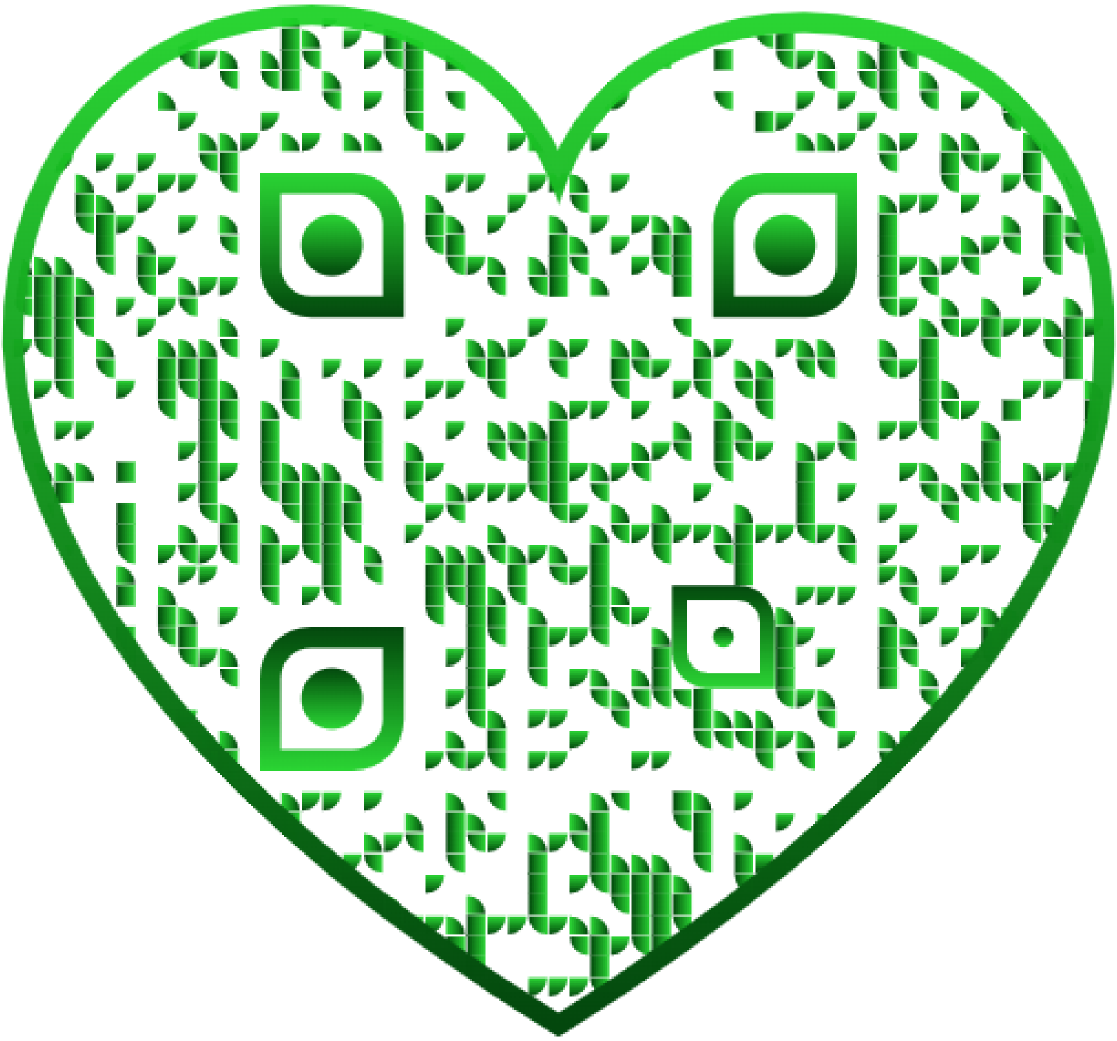
BYO
30
YEARS



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- New recipes to brew: Find 25 new clone recipes from popular craft brewers, including Bierstadt, Trillium, Bell's, and Allagash.
- Everything you need to up your game: From extended info on brew-in-a-bag to the latest dry-hopping techniques.

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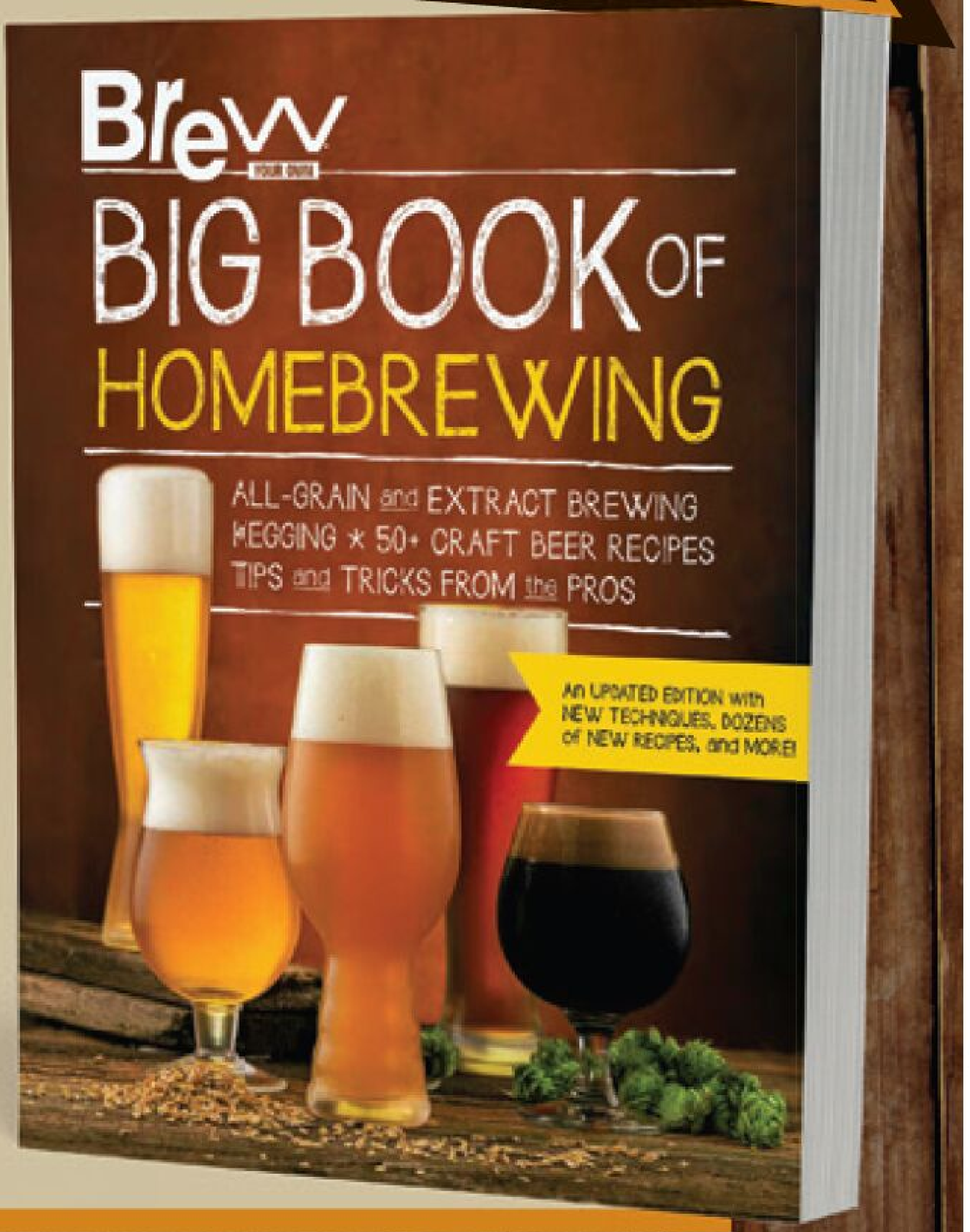
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We recap and share photos from a recent Czech beer adventure with *BYO* readers and Publisher Brad Ring.

22 THE BEER THAT DRINKS LIKE A WINE

Fresh off his latest book *Brewing Barley Wines: Origins, History, and Making Them at Home Today*, Terry Foster shares the keys and five different approaches to brewing a great barleywine at home.

by Terry Foster

28 PRO TIPS FOR BREWING BARLEYWINE

Four pro brewers recognized for brewing barleywine share their advice for homebrewers. From recipe formulation, brewing techniques, and aging this big beer style on oak (or not), they cover all the bases for how they brew barleywine.

by Dawson Raspuzzi

34 NEW MALTS TO BREW WITH

Maltsters around the world have been releasing exciting new malts available to homebrewers in recent years. It's time we check in on what's become available, including a number of heritage barley varieties, cutting-edge offerings, and even style-specific malts.

by Adrian Febre

40 NEW HOPS TO BREW WITH

Similar to maltsters, hop breeders have been busy introducing brewers to new releases featuring aromas and flavors designed for specific beer styles. If you've blinked over the past couple of years, there's a good chance you missed a few. Let's look closer at some of the coolest new hop varieties.

by Drew Jackson

48 JEKYLL BEER OF YESTERYEAR

The first commercial beer in the state of Georgia was brewed more than 275 years ago. We share the story of this Colonial-era brew and a modern brewery's attempt at recreating a beer like it.

by Peter Dillon

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THE HOW-TO HOMEBREW BEER MAGAZINE

departments

7 **MAIL**
Is dip hopping only for juicy, New England IPAs, or can it be a tool for West Coast IPAs too? Drew Beechum answers that question with advice on how he uses the technique. Plus, an explanation of how "clone" recipes in *BYO* are created.

8 **HOMEBREW NATION**
A homebrewer shares an award-winning chocolate peanut butter milk stout recipe that pairs perfectly with snowy nights. Plus, the latest new product releases and upcoming homebrewing events.

10 **REPLICATOR**
New beer releases are cycled through breweries so often these days that a favorite one week at the tasting room may never be found again. That isn't the case for this hoppy amber ale that Smog City has been brewing since opening in 2011. Fourteen years in and there's no getting rid of a Sabre-Toothed Squirrel.

12 **MR. WIZARD**
The discussion of stressing yeast to increase phenolics for styles like hefeweizens has been around for a long time. The Wizard weighs in on if this is necessary and shares other options if you aren't getting the aromas you want from your yeast. He also answers questions on preventing dough balls and offers up advice for homebrewing in environments where climate and remoteness prove challenging.

15 **STYLE PROFILE**
Belgian dubbel will always have a place in Gordon Strong's heart because it's the first style he brewed all-grain many years ago. While the style hasn't really changed since then, his approach to brewing this dry, dark, malty beer that gets a lot of its character from the estery/spicy yeast character has.

53 **TECHNIQUES**
You don't have to live in a drought-ridden location to be conscientious about your water use. Drew and Denny recall the saying most of us learned as children — *reduce, reuse, recycle* — as they share ways to cut back on brewing water usage without sacrificing quality.

58 **LAST CALL**
A Bristol, U.K.-based organization is helping elderly dementia patients through beer. It started with the idea of growing hops and has turned into a series of sessions in care homes based around hops, pubs, brewing, and drinking culture that culminates in the production of a fresh-hopped beer available at pubs across the U.K.

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RECIPE STANDARDIZATION

EXTRACT EFFICIENCY: 65%
(i.e. — 1 pound of 2-row malt, which has a potential extract value of 1.037 in one U.S. gallon of water, would yield a wort of 1.024.)

EXTRACT VALUES FOR MALT EXTRACT:
liquid malt extract (LME) = 1.033–1.037
dried malt extract (DME) = 1.045

POTENTIAL EXTRACT FOR GRAINS:
2-row base malts = 1.037–1.038
wheat malt = 1.037
6-row base malts = 1.035
Munich malt = 1.035
Vienna malt = 1.035
crystal malts = 1.033–1.035
chocolate malts = 1.034
dark roasted grains = 1.024–1.026
flaked maize and rice = 1.037–1.038

HOPS:
We calculate IBUs based on 25% hop utilization for a one-hour boil of hop pellets at specific gravities less than 1.050. For post-boil hop stands, we calculate IBUs based on 10% hop utilization for 30-minute hop stands at specific gravities less than 1.050. Increase hop dosage 10% if using whole leaf hops.

Gallons:
We use U.S. gallons whenever gallons are mentioned.

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BREW YOUR OWN
THE HOW-TO HOMEBREW BEER MAGAZINE

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Q

What new hop, malt, or yeast has been the biggest game changer to your brewing in recent years?

Crisp Chevallier® Heritage Malt – the character it delivers is astounding. It makes perfect sense as a single malt for IPA since it's rich enough to stand up to half of Yakima's harvest in a batch. Of course, Crisp bills it as "the original IPA malt," and me being loath to suggestion, love to use it in styles like milds. It has enough oomph to make beers feel rich even if their gravity is profoundly milquetoast.

The advanced hop products from Haas, namely Incognito and Spectrum. We use Incognito in the whirlpool on certain beers, and the carry through post-fermentation is incredible compared to pellet hops. We recently tried Spectrum as a replacement for dry hopping and loved the results. For malt: Briess Crystal Red. Finally, a way to get a wonderful red color in beer (which in my opinion is the hardest color to hit). It's 200 °L, so you can achieve colors with minimal flavor impact.

Biggest game changer hop for me definitely has to be Sabro®. The unique mix of tangerine/sweet fruit mixed with creamy hints of coconut and vanilla is what makes my hazy Electric Creamsicle beer possible! One pound per 10 gallons (0.45 kg/38 L), no other hops used.

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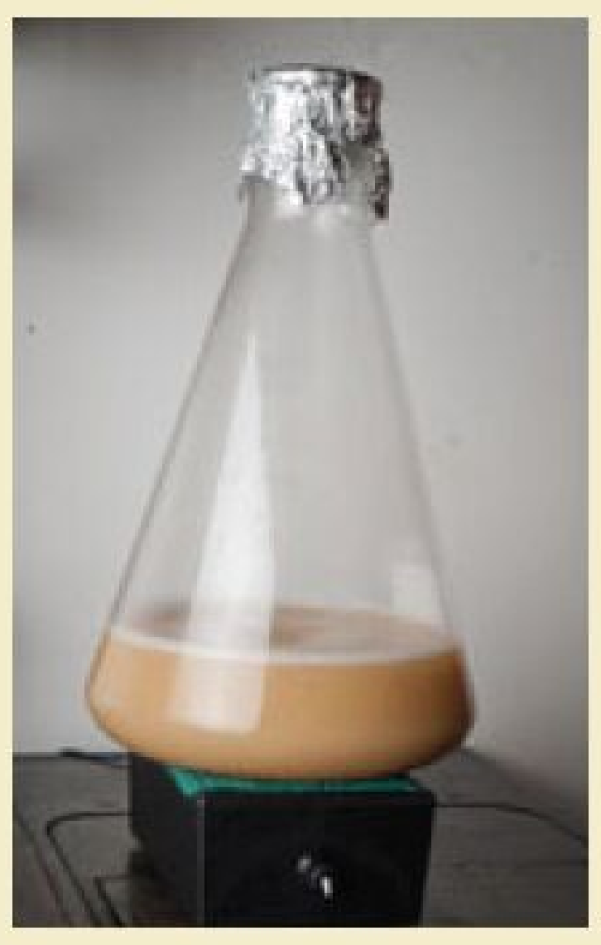
suggested pairings at BYO.COM

Crafting Your Own Belgian Abbey-Style Ales

Abbey-style ales are as complex as they are sought-after. Get tips to brew your own tafelbier, dubbel, tripel, and quadrupel ales from the homebrewers who won gold in the Trappist ale category of the 2017 National Homebrew Competition. www.byo.com/article/crafting-belgian-abbey-style-ales/

High-Gravity Fermentations



Yeast has problems dealing with worts of high gravity and fermentation of such worts may become sluggish and even cease as the alcohol content of the liquid increases if you aren't careful. Follow this advice when brewing high-alcohol beers and you (and your yeast) will have a much better chance of success. www.byo.com/article/high-gravity-fermentations/

Heirloom and Alternative Grains

If you are searching for a way to impart unique flavors that often showcase the regional terroir of where they are grown, heirloom and other alternative grains are a great source. Sure, they may require some extra effort, but the rewards are worth it. www.byo.com/article/heirloom-and-alternative-grains/

A Decade in the Making

It takes at least 10 years (and often more) from the time a new hop is initially crossed to its release. That is, if it even gets released, which is incredibly rare considering how many crosses are made every year. For a hop to be released, it has to check all of the boxes. www.byo.com/article/a-decade-in-the-making/

MAIL

COOL TIPS FOR MAKING EISBOCK
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UNDERSTANDING A MALT COA
IMPACT OF HOP AGE
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BITTERNESS FROM DIP HOPPING

I've been reading about dip hopping but now, thanks to Denny and Drew's "Techniques" column from the November-December 2024 issue, I have an example to follow. I know these guys know more about West Coast IPAs than I could even imagine. My concern with this technique is the upfront bitterness. I like my IBUs up around 30 or 40 at 60 minutes to give me the proper bitterness to balance those big whirlpool and dry-hop aromas. Will I get that type of bitterness from following this technique? I have to admit, I am not a fan of hazy, juicy, East Coast IPAs and I fear that is what I'll get.

Graham Hunter • *via email*

Drew Beechum responds: "Graham, have no fear! There's nothing about dip hopping that precludes you from having hop additions at the usual times in the boil kettle. When we've both done it, we've invariably had a 60-minute hop addition to the kettle because we both want to feel the bitter punch of hops in our IPAs! The Denny Kong IPA we did a couple of years ago with North Park Beer Co. was a perfect example with a big charge of hops early and then both whirlpool and dip-hop additions (and then two dry hops). Let's just say, that beer had hops all over the place and was brilliant for it. Consider dip hopping another blade in the brewer's hoppy Leatherman!"

RUSSIAN RIVER CLONE RECIPES

I read the Pliny the Elder clone recipe in the November-December 2024 issue that includes lots of text from Vinnie Cilurzo, but I can't tell for certain if the recipe is actually straight from Vinnie himself or if it's just a clone recipe written by author Vito Delucchi. Please clarify. Thank you.

Josh Buhl • *via email*

All five of the Russian River clone recipes that are part of the cover story came directly from Vinnie. In fact, all of the clone recipes published in BYO *come from the brewers themselves unless otherwise specified (though, there are some cases where we will have to fill in a hole, for instance in cases where a brewery uses a proprietary yeast strain or an ingredient not available to homebrewers). That wasn't the case with any of the Russian River recipes though.* BYO

contributors

Terry Foster was born in London, England, and holds a PhD in chemistry from the University of London. He now lives part of every year near New Haven, Connecticut, where he often brews commercially with Brewport Brewing in Bridgeport, Connecticut. Terry has written numerous brewing books including the *Pale Ale* and *Porter* books in Brewers Publications' *Classic Beer Styles Series*, as well as *Brewing Porters and Stouts*, *The Life and Death of a Bridgeport Brewery*, and *Brewing Barley Wines: Origins, History, and Making Them at Home Today*. He also wrote the "Techniques" column for *BYO* from 2010–2016 and has contributed numerous feature stories for the magazine over the years.

Terry shares an adapted summary of his latest book on barleywines beginning on page 22.

Adrian Febre is an Operations Analyst at the family brewery, MacLeod Ale Brewing Co. in Van Nuys, California. He moonlights as an ultra-small batch homebrewer. As an undergraduate physics student in New York City, he was drawn into homebrewing by the excellent local craft beer scene. After a couple of 1-gallon (3.8-L) beer kits, and due to a love for tinkering and the challenges of small-batch brewing, he stuck to the format. Now, he enjoys brewing malty and funky beers, be they amber kellerbiers, *Brett*-laced porters, or fruited Goses, nine bottles at a time.

Starting on page 34, Adrian shines a light on some new malts recently made available to homebrewers.

Peter Dillon's interest in homebrewing started in 2012 when his wife bought him a 2-gallon (8-L) extract brewing kit. Since then, his equipment has improved, his skills have grown, and he is pursuing his goal to brew each beer style listed in the BJCP Style Guidelines. After retiring in 2014 from the federal government, Peter and his family moved full time to Jekyll Island, Georgia, where he has been active with the Friends of Historic Jekyll Island and the Coastal Georgia Genealogical Society.

Jekyll Island happens to the site of the first commercial brewery in the state of Georgia during the Colonial-era. Peter shares the story of how the beer came to be and how a modern brewery attempted to recreate a beer similar to it on page 48.

BYO HOMEBREW NATION

READER RECIPE

BOB DUGAN • AYER, MASSACHUSETTS

I first made this beer because I love stouts, but they aren't always the most approachable style to friends and family. By taking advantage of some of the "softer" dark malts, I've made a recipe that is more welcoming to all beer drinkers. It's always fun to have something on tap that drinks like a dessert no matter what season we're in. Whether you're chasing homebrew medals or you just want to make a fun beer to share with friends, this one checks the boxes. This chocolate peanut butter milk stout has an aroma of sweet chocolate married with peanut buttery goodness. The flavor is a very light roastiness, with sweet chocolate and a lingering peanut butter that is balanced out with milk-sugar sweetness. Named Trick or Treat, it showcases what dark malts can do and is a nod to the candy that everyone loves. It's consistently scored well in competition, including many 1st place scores in the Spice/Herb/Vegetable category, including:

- 1st Place - 2022 MALT Turkey Shoot (Maryland)
- 1st Place - 2023 Operation Fermentation (Texas)
- 1st Place - 2024 Ocean State Homebrew Competition (Rhode Island)

TRICK OR TREAT

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.022
IBU = 34 SRM = 29 ABV = 5.5%

INGREDIENTS

8 lbs. (3.6 kg) 2-row pale malt
1 lb. (0.45 kg) flaked oats
12 oz. (340 g) pale chocolate malt
12 oz. (340 g) chocolate wheat malt
8 oz. (226 g) caramel wheat malt
1 lb. (0.45 kg) lactose (10 min.)
9.5 AAU Fuggle hops (60 min.)
(2.5 oz./71 g at 3.8% alpha acids)
1 Whirlfloc tablet (10 min)
3 fl. oz. (90 mL) Brewer's Best Natural Peanut Butter Flavoring (at packaging)
SafAle S-04 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

On brew day, prepare your water by adding 1.2 g gypsum, 0.7 g calcium chloride, and 0.7 g Epsom salt to 5 gallons (19 L) of distilled water. Mash the grains at 152 °F (67 °C) for one hour and mash out at 165 °F (74 °C) for 10 minutes.

Prepare your sparge water by adding 0.6 g gypsum, 0.3 g calcium chloride, and 0.3 g Epsom salt to 2.4 gallons (9 L) of distilled water and heating it up to 170 °F (77 °C). Sparge your grains and collect 6.2 gallons (23.5 L) of wort.

Bring wort to a boil and add hops at the start of the 60-minute boil. Add lactose and Whirlfloc during the last 10 minutes of the boil.

Chill wort to 65 °F (18 °C) and pitch yeast. Ferment at this temperature and then condition for a total of 14 days. Transfer your beer into a keg, add in 3 fl. oz. (90 mL) of Brewer's Best Natural Peanut Butter Flavoring and force carbonate, or transfer your beer into a bottling bucket and add in the peanut butter flavoring prior to priming and bottle conditioning.

UPCOMING EVENTS

JANUARY 31, 2025

HANDS-ON HOMEBREW SCIENCE

BYO's Technical Editor Ashton Lewis will show homebrewers how to use pH meters, yeast slants and loops, and other basic lab gear to run different brewing tests in this online BYO Boot Camp. Ashton will also cover physical evaluation of milled malt, hops, demonstrate how enzymatic reactions can be visualized, and show some practical, easily executed projects highlighting the brewing sciences — all with the goal of making better beer at home! The cost is just $75 and the class will be recorded so you can watch the play back as many times as you like. Learn more at: www.byo.com/bootcamps

FEBRUARY 28, 2025

EVALUATING BEER LIKE A JUDGE

Gordon Strong — President Emeritus and highest-ranking beer judge of the Beer Judge Certification Program (BJCP) — will explain and show the best ways to analyze and evaluate beer so you can improve your own brewing. You'll learn how to not simply taste your beer, but critically examine it. This online class will allow registrants to follow along with Gordon evaluating a specific lineup of craft beer together in real-time for an interactive learning experience. Knowing how to evaluate your beer is an important skill to develop for any homebrewer and there's no better person to learn from than Gordon. Learn more at: www.byo.com/bootcamps

WHAT'S NEW

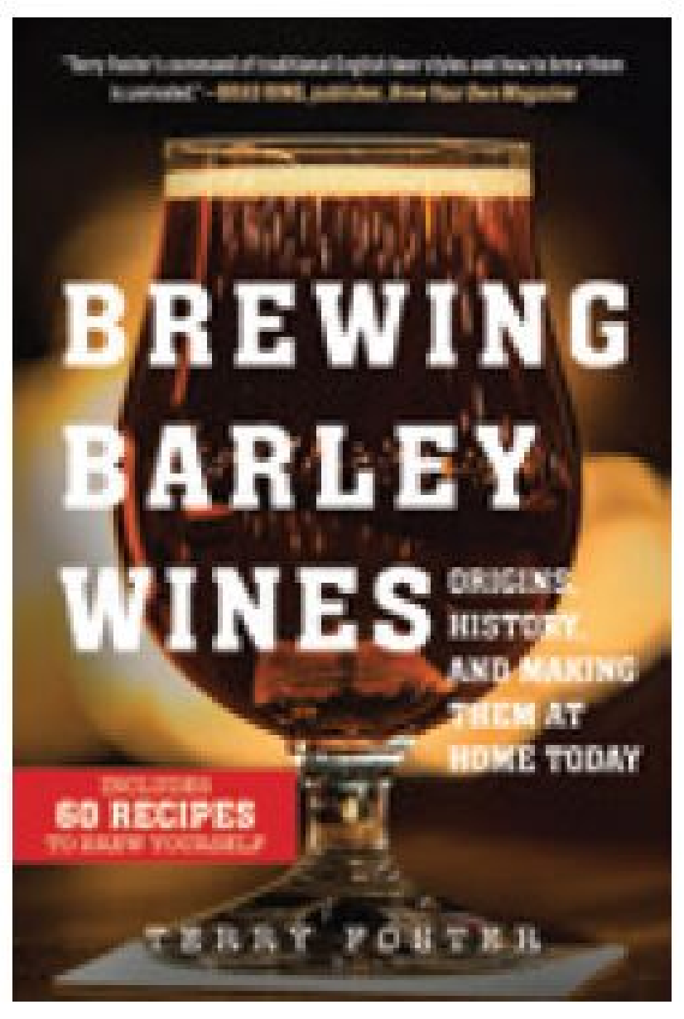
BULLET FERMENTER BF10

Bullet BrewCo has re-imagined the small-scale conical fermenter designed for homebrewers with its BF10. Made of 304 stainless steel, it has a 14-gallon (53-L) capacity to ferment 10-gallon (38-L) batches and is pressure rated to 15 PSI. It has a 60-degree cone at the bottom and features a 2-inch (5-cm) tri-clover (TC) bottom port, 4-inch (10-cm) TC top port, as well as three 1.5-inch (3.8-cm) TC ports in the front and three 1.5-inch (3.8-cm) TC ports on the lid. Sold separately is a temperature control package, leg extension kit, and other add-ons. Learn more at: www.bulletbrew.co

CUSTOM FERMENTATIONS JF8 JACKETED UNITANK

This fully customizable 8-gallon (30-L) jacketed unitank is now available from Custom Fermentations. The JF8 conical unitank features 3-mm stainless steel construction, a built-in cooling jacket, and a 100% sanitary tri-clamp connection system. The JF8 is rated to 15 PSI for precise pressure fermentation and direct in-vessel carbonation. It features a 6-inch (12.5-cm) main head port for easy access and includes a 5-mm neoprene insulation jacket. The base tank retails for $899 and can be customized from the ground up with 40+ commercial-grade accessories. Six preconfigured models are also available. Learn more at: www.customferm.com

BREWING BARLEY WINES: ORIGINS, HISTORY, AND MAKING THEM AT HOME TODAY



Beer author Terry Foster presents the history and development of barleywines — from their early English roots to the more modern takes from American craft brewers — as well as the guidance and expertise necessary to successfully brew barleywines. *Brewing Barley Wines* examines the ingredients used in this big beer style as well as best practices and procedures for brewing them. Foster also provides a collection of 60 recipes showcasing the variety and range of ingredients explored in the book with detailed instructions for making them at home. Read an adapted overview in this issue on page 22 and then get your copy at better book retailers. BYO

THIS COMPREHENSIVE BOOK FROM *WINEMAKER* MAGAZINE—PACKED WITH **TIPS, TECHNIQUES, STEP-BY-STEP PHOTOS, AND MORE**—IS THE ONE RESOURCE YOU NEED TO MAKE YOUR OWN GREAT WINE AT HOME.

The WineMaker Guide to Home Winemaking explores the winemaking process from start to finish with helpful photos throughout. It has plenty for the experienced winemaker as well, including:

- Keys to better winemaking: maceration, fermentation, blending, and more
- A variety of editor-tested recipes
- A deep dive on wine-related ingredients
- The most useful troubleshooting solutions ever published in the magazine
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BYO REPLICATOR

BY DEREK DELLINGER

DEAR REPLICATOR, I recently fell in love with a beer — Smog City's Sabre-Toothed Squirrel. It's a hoppy amber ale. I loved the name, loved the beer, loved that breweries are still making amber ales, and even hoppy amber ales! Would love to know how to invite a Sabre-Toothed Squirrel into my own home. Could you track down a recipe?

Tara Whitman
Sacramento, California

Smog City Brewing Co.'s Jonathan Porter is lucky — for two decades, he's been witness to the development of the craft beer industry in California, the state that likely should be considered the industry's birthplace.

Founded in Torrance, California, Smog City has cemented its place as a vital member of the Southern California beer scene.

"Being in the California craft beer scene for 18 years has been amazing," says Porter. "The creativity of the brewers here created a fantastic place to 'grow up' in and be a part of."

Smog City Brewing Co. was founded in 2011 by Porter and his wife, Laurie. Porter himself started his brewing career in 2006, working in both production and brewpub environments to learn the ropes while evaluating the feasibility of building out a facility of his own. When Smog City first opened, the couple handled every aspect of the business themselves. Today, while the beer is still brewed in the same original facility, the company has grown dramatically. Smog City has since opened four taproom locations in Southern California, has 40 employees, and will produce more than 10,000 barrels of beer in 2024.

"I like to think we contributed to the vast array of beer styles that consumers now enjoy with our dedicated sour and funky beer production space and ongoing spirit barrel aging program," Porter says. "Our goal has always been to have something for everyone, and it shows when you visit any of our taprooms or see our eclectic offering of distributed beers."

Porter believes that the backbone of the brewing industry has always been innovation. Even today, he doesn't believe that has changed. "Whether pushing styles to the extreme or incorporating unusual ingredients to make something that's barely recognizable as beer, I still think innovation is important to consumers," says Porter.

Though he also believes there are other equally important pieces to the puzzle. Education, he says, shouldn't stop just because the industry has now enjoyed a few decades to catch consumers up on the many available varieties of beer.

"With craft beer being so mainstream now, I feel that there is a little lethargy when it comes to educating people about beer. The older folks forget that younger drinkers don't have all the backstory and perspective to understand the art and craft of what makes craft beer so special. If we can continue to focus on innovation and education, I think the experience of craft beer for the next generation can be fun, interesting, and rewarding."

Smog City takes a number of approaches when it comes to developing a new beer, according to Porter, but the brewery's years of experience are more than enough to be confident in their process, even when experimenting.

"We have so much combined experience brewing that we tend to just go for it on the 15-barrel system," Porter says.

While many aspects of the beer business remain ever-changing, a good recipe is always worth keeping around for the long haul. Sabre-Toothed Squirrel, a hoppy amber ale, is one such classic.

"Sabre-Toothed Squirrel has been a mainstay at Smog City from the beginning," says Porter. "I actually created that beer when working at a brewpub and experimenting with hop blends from our supplier. I made an IPA with two blended hop products and when I tasted it, I thought 'these hops need malt.'"

At the time, Porter says, the IBU wars were still in full swing across the craft brewing scene, and particularly in California. "Brewers in SoCal were hop-blasting almost every style. I had the sense that people were bored of plain old amber and red ales, so we set about creating a beer that both hoppy and malty beer lovers would enjoy. The grain bill had to result in some malty sweet character but couldn't be too cloying, so a light touch was needed."

Porter prefers pine, citrus, and herbal notes paired with a maltier beer, as he feels that tropical and berry hop flavors tend to clash or get lost in the mix.

"Sabre-Toothed Squirrel is a product of its time. Using 'C-hops' was all the rage and the now ubiquitous Simcoe® had just been named." Due to the difficulty of sourcing Simcoe® during those years, Smog City relied on the Falconer's Flight hop blend for a time as a substitute. But once Simcoe® itself became easier to acquire again, they switched back.

Getting this style of beer to attenuate is crucial for preventing it from becoming cloying, according to Porter, who recommends not loading up too heavily on crystal malts. Smog City prefers Sabre-Toothed Squirrel to finish around 1.011–1.012.

But while Porter believes that balance and drinkability are key — with any style of beer — ensuring a proper pitch of healthy yeast is always one of the best steps a homebrewer can take toward ensuring a great brew.

SMOG CITY BREWING CO.'S SABRE-TOOTHED SQUIRREL CLONE

(5 gallons/19 L, all-grain)
OG = 1.063 FG = 1.011
IBU = 42 SRM = 16 ABV = 7%

INGREDIENTS

11 lbs. (5 kg) American 2-row pale malt
10 oz. (285 g) Weyermann Munich Type II malt
10 oz. (285 g) Crisp crystal malt (45 °L)
10 oz. (285 g) Simpsons Premium English Caramalt (60 °L)
6 oz. (170 g) Crisp crystal malt (120 °L)
2 oz. (57 g) Weyermann chocolate wheat malt
7.6 AAU Pahto™ hops (60 min.) (0.4 oz./11 g at 19% alpha acids)
4.3 AAU Simcoe® hops (10 min.) (0.33 oz./9.3 g at 13% alpha acids)
4.3 AAU Chinook hops (10 min.) (0.33 oz./9.3 g at 13% alpha acids)
0.5 oz. (14 g) Amarillo® hops (whirlpool)
0.5 oz. (14 g) Chinook hops (whirlpool)
2 oz. (57 g) Simcoe® hops (dry hop)
2 oz. (57 g) Chinook hops (dry hop)
1 oz. (28 g) Centennial hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
White Labs WLP001 (California Ale), Wyeast 1058 (American Ale), or SafAle US-05 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

With the goal of creating a moderately dextrinous wort, mash in with 2.75 gallons (10.4 L) of 164 °F (73 °C) strike water to achieve a rest temperature of 152 °F (67 °C). Hold at this temperature for 60 minutes.

Sparge with water at 170 °F (77 °C) and collect about 6 gallons (23 L) of wort. At the start of boil, add Pahto™ hops and set timer for 60 minutes. Follow hopping schedule for remaining hop additions.

When the boil is complete, turn off heat and add the whirlpool hops. Stir to create a whirlpool and then cover and let stand for 15 minutes. When done, chill wort to slightly below fermentation temperature, around 66 °F (19 °C). Pitch yeast. Ferment around 68 °F (20 °C). Following primary fermentation, dry hop for four to five days before packaging.

SMOG CITY BREWING CO.'S SABRE-TOOTHED SQUIRREL CLONE

(5 gallons/19 L, extract with grains)
OG = 1.063 FG = 1.011
IBU = 42 SRM = 16 ABV = 7%

INGREDIENTS

7.3 lbs. (3.3 kg) light liquid malt extract
5 oz. (140 g) Munich dried malt extract
10 oz. (285 g) Crisp crystal malt (45 °L)
10 oz. (285 g) Simpsons Premium English Caramalt (60 °L)
6 oz. (170 g) Crisp crystal malt (120 °L)
2 oz. (57 g) Weyermann chocolate wheat malt
7.6 AAU Pahto™ hops (60 min.) (0.4 oz./11 g at 19% alpha acids)
4.3 AAU Simcoe® hops (10 min.) (0.33 oz./9.3 g at 13% alpha acids)
4.3 AAU Chinook hops (10 min.) (0.33 oz./9.3 g at 13% alpha acids)
0.5 oz. (14 g) Amarillo® hops (whirlpool)
0.5 oz. (14 g) Chinook hops (whirlpool)
2 oz. (57 g) Simcoe® hops (dry hop)
2 oz. (57 g) Chinook hops (dry hop)
1 oz. (28 g) Centennial hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
White Labs WLP001 (California Ale), Wyeast 1058 (American Ale), or SafAle US-05 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Add the crushed grains in a muslin bag into your brew pot with 6 gallons (23 L) of water as you heat it up to 170 °F (77 °C). Remove the bag, allowing it to drip into the kettle, and then bring your wort up to a boil. Remove the kettle from heat and stir in the malt extract until fully dissolved. Return to heat and boil for 60 minutes, adding your hops at the times indicated.

After the boil, turn off heat and add the whirlpool hops. Stir to create a whirlpool and then cover and let stand for 15 minutes. When done, chill wort to slightly below fermentation temperature, around 66 °F (19 °C). Oxygenate if using liquid yeast and then pitch yeast. Ferment around 68 °F (20 °C). Following primary fermentation, dry hop for four to five days before packaging.

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SMOG CITY Brewing Co.
Sabre-Toothed Squirrel
HOPPY AMERICAN AMBER ALE
SMOG CITY Brewing Co.
Sabre-Toothed Squirrel
HOPPY AMERICAN AMBER ALE
7.0% ALC./VOL. | 16.0 FL OZ
Sabre-Toothed Squirrel hoppy amber ale is a playful combo of sweet citrusy hoppiness and toasty, caramel malt flavors. A menagerie of hops blend together, exploding out of the glass to create a unique, flavor-packed experience.
1% FOR THE PLANET

BY ASHTON LEWIS

STRESSING YEAST TO BOOST PHENOLICS

Plus: Dough balls and brewing in challenging locations

Q I USE DRY YEAST FOR MY HEFEWEIZENS. I HEAR ONE SHOULD STRESS THE YEAST FOR MORE PHENOLICS. IF I HAVE AN 11-GRAM PACKET, SHOULD I ONLY USE PART OF IT OR INCREASE THE FERMENTATION TEMPERATURE TO BOOST AROMATICS?

EDWARD O'NEILL
SAINT LOUIS, MISSOURI

A This is a great question that is perfect for a short answer. Contrary to my love of marching to my own beat, I do believe in following supplier suggestions. I would start out by doing what the yeast manufacturer suggests for weizen beer. The best place to find this information is usually on the supplier's website. If you don't get the desired results, there are two paths to follow. One is to choose a different yeast strain and the second is to start adjusting your mashing, pitching, and fermentation set points. Because I am a simple brewer, I would start with Door #1 if I were unhappy with my fermentation results; change yeast strains.

But if you want Door #2, there is a whole lot of stuff to consider. Adding a ferulic acid rest (see my column in the July-August 2024 issue for more information), decreasing pitch rate, decreasing wort aeration, adjusting temperature (up and down both have their merits), and adjusting your grist bill are all options. The challenge with Door #2 is that you have just entered the hall of mirrors and it can take a very, very long time to figure out the best path forward.

And then there is Door #3 — which is following my homebrew hefeweizen recipe. The grain bill is made up of 50% German pale malted wheat, 48% Pilsner malt (brewer's choice), and 2% light crystal malt for a touch of color. Wort gravity should be 1.050 (12.5 °Plato) and the bitterness should be ~12 IBU using a single addition of a German noble hop variety. Mash in at 122 °F (50 °C) and hold for 20 minutes, then heat to 154 °F (68 °C) and hold for 30–45 minutes. Collect wort, add hops at the start of the 60-minute boil, cool to 64–68 °F (18–20 °C), pitch SafAle W-68 per the pitch rate for your batch size (printed on pack), and ferment at 68 °F (20 °C).

Being this specific with brewing suggestions is something I rarely do, but I am really loving having a dried source of Weihenstephan 68 for my weizen brewing. This strain is the classic weizen yeast for those fruity and clove aromatics found in quintessential Bavarian wheat beers. Prost!

> Contrary to my love of marching to my own beat, I do believe in following supplier suggestions.

Following yeast manufacturer recommendations on pitch rate is the best place to start. If looking for a different character, the Wizard suggests there are easier ways to find them than messing with pitch rates.

Q I BREW 10-GALLON (38-L) BATCHES, SO THERE IS QUITE A BIT OF GRAIN USED IN EVERY BATCH. I FIND THAT AS I SLOWLY DUMP THE CRUSHED GRAINS INTO THE MASH TUN WHILE GENTLY STIRRING, OCCASIONALLY THE GRAIN FALLS IN AS A LARGER CLUMP AND YIELDS DOUGH BALLS. THESE CAN BE DIFFICULT TO BREAK UP WITHOUT SPLASHING/ADDING OXYGEN TO THE MASH. I'VE GOT A COUPLE OF QUESTIONS RELATED TO THIS: IS THERE A BETTER WAY TO

CONTROL THE GRAIN ADDITION TO THE MASH TUN? WOULD A HOMEMADE GRIST HYDRATOR PREVENT THE DOUGH BALLS? ALSO, WOULD A GRIST HYDRATOR INTRODUCE HOT-SIDE AERATION (HSA)? IS HSA EVEN AN ISSUE ON SUCH A SMALL SCALE?

NEAL STEWARD
SPRINGVILLE, NEW YORK

A Dough balls are an undeniable nuisance to brewers of all sizes because the malt in the dough ball is not wetted and does us brewers no good.

Unless you are stirring with unrestrained vigor, hot-side aeration is not something to lose sleep over. A few things that may help you out include using a mash paddle that is designed to help minimize these pesky clumps, smashing the dough ball into the mash paddle with a spoon, blasting the dough ball with targeted and judiciously applied jets of water from your favorite hose nozzle, or sequentially adding a bit of water followed by a bit of malt to spread your additions out. Some of these methods double as stress relief for cranky brewers!

Grist hydrators are common in commercial breweries of nearly all sizes, but they are not inexpensive to purchase or easy to build without access to stainless welding. Unless you are a gearhead looking for a project, I don't suggest the grist hydrator route. Thanks for the question, Neal, and hope you solve your dough ball woes with one of the low-cost, manual methods.

ON A RECENT SCUBA DIVING TRIP TO BONAIRE IN THE DUTCH CARIBBEAN, I HAD SEVERAL GREAT CONVERSATIONS WITH WILCO LANDZAAT, MASTER DIVE INSTRUCTOR AT CAPTAIN DON'S HABITAT, ABOUT BEER, DIVING, AND BREWING. WILCO IS ONE OF A SMALL HANDFUL OF BREWERS ON BONAIRE AND HAS BREWED FOR MANY YEARS AT HOME AND, FOR A SHORTER PERIOD, FOR BONAIRE BLONDE, A NANO THAT MADE THE DECISION TO FOCUS ON SELLING IMPORTS BECAUSE OF HIGH PRODUCTION COSTS.

I ASKED WILCO WHAT HIS BIGGEST CHALLENGES OF ISLAND BREWING ARE. HIS TOP THREE CHALLENGES ARE SOURCING AND STORING MALT AND HOPS, OBTAINING LIQUID YEAST, AND FERMENTATION TEMPERATURE CONTROL. ALTHOUGH BREWING WITH KVEIK STRAINS WORKS FOR HIM, HE LIKES USING OTHER YEAST STRAINS THAT PRODUCE BETTER BEER IN A CONTROLLED ENVIRONMENT. FOR THOSE READERS WHO SHARE WILCO'S CHALLENGES, WHAT FOLLOWS IS FOR YOU!

From time to time, I take space in my column to write about something timely and exciting to share. Wilco's dilemma is a challenge for me because there is a limit to reducing production costs when living on a small island where everything is a challenge due to the cost of shipping, energy, and warm average temperatures. Even if you aren't living on an island, I think my advice may be of benefit to a number of readers in remote or hot locations, or who wish to cut the costs of their hobby.

I will start with the low-hanging fruit: Yeast. Liquid yeast is expensive, not just for those living outside of countries like the U.S. where specialty labs produce a diverse and exciting selection of strains, but for all homebrewers. Yes, homebrewing is a hobby, and the goals of hobbyists are not the same as commercial brewers, but there is a limit to how much folks are willing to sink into 5-gallon (19-L) batches of beer. I am proudly frugal and like to spend less on raw materials for a batch than buying commercially produced beer. In today's world, that is somewhere around $100 per 5-gallon (19-L) batch, depending on where you live. Beer taxes are all over the place and are something to factor into this metric. Bottom line is that liquid yeast can eat up a big chunk of the raw material total when express-shipped to Bonaire. In fact, the "cheapest" FedEx envelope rate to Bonaire is $80!

Here are a few things to reduce the cost of yeast. I am skipping the details of how because we have covered this in many previous issues of *BYO*. For starters, find a friend who can be your courier to bring you yeast, general purpose micro media, a few test tubes, and dried malt extract (DME) when traveling to your remote/expensive location. This is gonna cost something, like a nice lunch or a few beers, but will save you big time!

Once you have yeast in hand, prepare some media slants for later use. When you do brew, which should be soon after your prized shipment has been delivered, use a microbiologist's "loop" to transfer yeast from your "empty" liquid package onto the surface of the slants, allow the surface to grow for a few days, cover with sterile mineral oil, close the test tube with a sterile cotton plug, and chuck the tubes in your refrigerator for future use. The DME will be used to make your own liquid pitches for future brews. If you want to have several strains on hand, ask your friend to bring whatever you want for the future.

Another cost-saving suggestion is to have your courier bring you a wide selection of dried yeasts and take advantage of the long shelf life and simplicity of using dried yeast. When brewing in expensive parts of the globe, you need to choose your brewing battles wisely and dried yeast these days is a terrific option.

Let's move onto hops, another ingredient that is hard to find in places with a small homebrewing scene and with few established breweries. Although the weight of hops used in most beers represents a small weight, shipping can add to the cost. Again, having a friend make hop deliveries is an option. If relying on visitors to bring hops is not practical, consider using hop extracts for bittering purposes, augmenting pellet additions with hop aroma extracts, using lupulin enriched hop products like Cryo® hops, and focusing on styles that don't require large aroma additions as a few ways to cut back on how much "stuff" you either need to import or have stuffed in your friend's suitcase or carry-on.

Another hop option is to replace hops with locally available herbs, spices, and fruits. This strategy can work whether brewing "hoppy" styles with bold and fruity noses or dry, crisp, and spicy styles. Looking for a big, juicy, mango and pineapple hop aroma in your hazy IPA? Instead of seeking out those fruit aromas from hops, go straight to the source and add mangos and pineapple juice to your beer! Remember that pineapple contains the foam-destroying enzyme, bromelain, and to either somehow cook fresh pineapple before use or to use canned pineapple. How about a nice witbier after a hot day on the dive boat? Those wonderful spicy and fruity notes can be found at the local market. The sky really is the limit when it comes to hop replacements, because hops replaced herbs and spices commonly used by brewers when hops were just "wicked weeds" crawling about in the wild.

Now that the low-hanging fruit has been plucked, it's time to venture on to the real challenges: Malt and refrigeration. Seasonal temperature fluctuations and the access to ice sources during the winter months relegated beer brewing to latitudes greater than about 40° until the advent of commercial refrigeration allowed brewers to ferment, age, store, and ship beers in hotter climates. Once the temperature problem was solved, barley, primarily grown in latitudes greater than 50°, was shipped to warmer climates for malting to serve the growth of breweries around the globe.

For those readers not familiar with Wilco's island-home, Bonaire is situated 12° north of the equator and 68° west of the prime meridian. That's about 1,925 miles (3,100 km), as the flamingo flies, south of 40° north latitude. While I could expand the definition of beer to include seltzer, like the tax-collecting office simply known as the TTB has done, and conclude with clarity, I'm going to press onwards with beer-flavored beer.

Malt is bulky and, outside of water, is the main ingredient in beer, both in terms of weight and functionality (sorry hop heads!). Malt brings us enzymes, a ready source of starch that is easily converted into fermentable sugar through mashing, nature's own wort filter media, color, foam-stabilizing proteins, body-building biopolymers, and those wonderful malt aromas and tastes. To brew relatively normal beer, there is no way around dealing with this bulky ingredient. But don't lose hope!

Lower-ABV beer styles, styles traditionally containing ~20–50% unmalted adjuncts, dry malt extracts, and brewing enzymes are a few of the things that can be used to lighten the malt bill when freight costs simply become too great to bear. Start by taking a trip to the local market and seeking out ingredients that can be used as adjuncts. Maize (corn), rice, sugars, flaked cereals, and locally produced grains like millet may cost less than malt. Brewers often assume that adjuncts are cheap, but when compared to malted barley and malted wheat, they are often more expensive and not as easy to use.

Brewing enzymes, like alpha amylase powder and liquid amyloglucosidase/glucoamylase, are very handy because of their power per weight and because they permit higher adjunct usage rates. If locally available adjuncts are indeed less costly than malt, enzymes can be a big help for just about all ingredients outside of sugars. Keep in mind that higher adjunct ratios dilute wort nutrients from malt; if brewing with more than about 25% adjunct, nutrient additions will help your yeast with fermentation and will also keep certain off-flavors in check.

The last hurdle to brewing in Bonaire and other hot climates is temperature control. Island brewing has the additional challenge of expensive electricity. The two easy solutions are to ferment hot using kveik strains or to bite the bullet and ferment in a refrigerator. Those ideas work, but Wilco told me that he wants more variety than offered by kveik strains and would like to do something that does not always require a refrigerated space.

One thing about modern living in hot climates is that most places have air conditioning, and one of the more popular types of cooling uses so-called "mini split" units where the evaporator, or cold side of a cooling system, is installed in the wall of a building with the compressor and condenser, or hot side of a cooling system, is located somewhere outside. These small window-style units separate the hot and cold portions of a cooling system, like larger units that use air ducting, hence the name "mini split." These systems are handy because homes often have multiple mini splits. A single room in a home can be closed off and kept at below-average temperatures during active fermentation. Once active fermentation is complete, the room temperature can be returned to normal, and the doors open to other rooms.

Another idea is to use evaporative cooling to remove heat from fermentation via a DIY swamp cooler. All that is needed is a wet towel (I have used paper towels for this) partially submerged in a tub of water, a fan, and a temperature controller. The water wicks up the towel, the fan evaporates water, and the water vapor carries heat away from the surface of the fermenter. This only works with single wall fermenters and works best when the relative humidity is less than about 60%, making this perfect for use in a conditioned space or in a dry climate.

There are other ways to economize on cooling, like pumping water from a reservoir placed in a refrigerated space to a stainless fermenter immersion cooling coil, but most of these methods do require some sort of refrigeration system. For those hardcore project folks looking for something that does not require much electricity, check out vapor absorption refrigeration systems. The main energy input can be supplied by a fuel source, like propane, solar heat, or waste heat energy coming from other sources. This type of refrigeration is used in some recreational vehicles to cool refrigerators.

If you are like Wilco and brew in a hot, remote place, hopefully you've picked up some helpful tidbits here. And if you don't have these challenges and are just checking this out, you should feel lucky!

BY GORDON STRONG

BELGIAN DUBBEL

A style driven by malt and yeast

There is a special place in my heart for the Belgian dubbel style. Way back in the last century when I first switched to all-grain brewing, dubbel was the first style I attempted. I had always enjoyed Belgian beers, but they were expensive in the U.S. and sometimes hard to find. I couldn't get the desired flavor profile or mouthfeel using extract-based products, so I was eager to try building my own recipe. I tried many variations over the years, varying the strength, balance, ingredients, and methods, and entered these in competitions to validate my impressions.

Homebrew has come a long way from those days, and we now have a much wider range of ingredients available to brewers that make this style more achievable. While my original approach still works, I've updated my ingredients and methods to more closely match what is used in Belgium. However, I talk about the evolution of my approach because it could be applicable to brewing other styles, and it shows how similar-tasting beers can be made multiple ways. I've always wanted to hit the target flavor profile first, but if I could do it in a more authentic way, that's even better to me.

Multiple pilgrimages to Belgium to sample a wider range of examples gave me the desire to try to incorporate more of the authentic approaches. It also gave me a deeper appreciation of the characteristics that Belgians appreciate the most in their beers (including the obsessive demand that they be served in the proper glass), and helped me understand how examples taste when fresh and as they age. It's a rare craft style to find in modern times in the U.S., unless visiting a brewery specializing in Belgian-style beers. This by itself makes dubbel a good choice to make at home.

Belgian dubbel is style 26B in the Beer Judge Certification Program (BJCP) Style Guidelines, within Category 26, Monastic Ale, along with Belgian single, Belgian tripel, and Belgian dark strong ale. Monastic Ale is a compromise name that includes those traditional beers first produced by Trappist breweries and those abbey and secular breweries inspired by them around the world. Dubbel is usually pronounced the same as the English word "double," and not like "dooble."

HISTORY

While darker and stronger beers certainly existed in Belgium for a long time, the dubbel style can be traced back to when Westmalle first made it in 1922 as a double brown ale. Other breweries such as Chimay and St. Bernardus began making similar beers after World War II. American craft breweries learned of it initially through the writings of Michael Jackson, and imports through Merchant du Vin. Early breweries such as New Belgium and Ommegang helped popularize Belgian beers in general in America.

Religious institutions in Belgium often claim a long history with brewing as part of their tradition. However, few survived intact after the societal upheavals of the intervening years. After the French Revolution in 1789, the government disbanded all religious institutions, something that affected Belgium after the French invaded during the Napoleonic Wars. World War I was also devastating to the brewing industry when German invaders appropriated copper brewing equipment to use for making armaments, causing many breweries to shut down or flee. So, few monasteries can claim any kind of continuous brewing tradition.

Many of the monasteries became established (or re-established) after Belgian independence in 1830. For example, famous Trappist monastery Westmalle was raised to abbey status in

The dubbel style can be traced back to when Westmalle first made it in 1922 as a double brown ale.

BELGIAN DUBBEL
BY THE NUMBERS

OG: 1.062–1.075
FG:. 1.008–1.018
SRM:. 10–17
IBU:. 15–25
ABV: 6–7.6%

Photo by Charles A. Parker/Images Plus

BELGIAN DUBBEL

(5 gallons/19 L, all-grain)
OG = 1.066 FG = 1.012
IBU = 22 SRM = 17 ABV = 7%

INGREDIENTS

7.7 lbs. (3.5 kg) Belgian Pilsner malt
1 lb. (0.45 kg) German Munich malt
2 lbs. (0.9 kg) German dark Munich malt
4 oz. (113 g) CaraPils® malt
1 lb. (0.45 kg) amber (D-45) candi syrup
1 lb. (0.45 kg) dark (D-90) candi syrup
5.7 AAU Styrian Goldings hops (60 min.) (1.5 oz./43 g at 3.8% alpha acids)
0.5 oz. (14 g) Saaz hops (15 min.)
0.5 oz. (14 g) Saaz hops (2 min.)
Wyeast 3787 (Belgian High Gravity), White Labs WLP530 (Abbey Ale), Imperial Yeast B48 (Triple Double), or LalBrew Abbaye yeast
⅞ cup corn sugar (for priming)

STEP BY STEP

This recipe uses reverse osmosis (RO) water. Adjust all brewing water to a pH of 5.5 using phosphoric acid. Add 1 tsp. of calcium chloride to the mash.

This recipe uses an infusion mash with mashout. Use enough water to have a moderately thick mash (1.5 qts/lb). Mash in the malts at 149 °F (65 °C) and hold for 60 minutes. Raise the temperature to 169 °F (76 °C) and recirculate for 15 minutes. Sparge slowly and collect 6.5 gallons (24.5 L) of wort.

Boil the wort for 90 minutes, adding hops at the times indicated. Add the candi syrups with 15 minutes left in the boil.

Chill the wort to 64 °F (18 °C), pitch the yeast, and ferment until complete, allowing the temperature to rise as much as it wants, rousing the yeast if necessary to complete. Rack to secondary and cold condition for two weeks at 50 °F (10 °C).

Rack the beer again, prime and bottle condition, or keg and force carbonate. Repitching fresh yeast at bottling may be needed if bottle conditioning. Warm condition for two weeks at 70 °F (21 °C). Flavor peaks at about 3–6 months age.

BELGIAN DUBBEL

(5 gallons/19 L, extract only)
OG = 1.066 FG = 1.012
IBU = 22 SRM = 17 ABV = 7%

INGREDIENTS

3.3 lbs. (1.5 kg) extra light or Pilsner liquid malt extract
4 lbs. (1.8 kg) Munich liquid malt extract
1 lb. (0.45 kg) amber (D-45) candi syrup
1 lb. (0.45 kg) dark (D-90) candi syrup
5.7 AAU Styrian Goldings hops (60 min.) (1.5 oz./43 g at 3.8% alpha acids)
0.5 oz. (14 g) Saaz hops (15 min.)
0.5 oz. (14 g) Saaz hops (2 min.)
Wyeast 3787 (Belgian High Gravity), White Labs WLP530 (Abbey Ale), Imperial Yeast B48 (Triple Double), or LalBrew Abbaye yeast
⅞ cup corn sugar (for priming)

STEP BY STEP

Use 6.5 gallons (24.5 L) of water in the brew kettle; heat to 158 °F (70 °C). Turn off the heat, add the malt extract, and stir thoroughly to dissolve completely. Turn the heat back on and bring to a boil.

Boil the wort for 60 minutes, adding hops at the times indicated. Add the candi syrups with 15 minutes left in the boil.

Chill the wort to 64 °F (18 °C), pitch the yeast, and ferment until complete, allowing the temperature to rise as much as it wants, rousing the yeast if necessary to complete. Rack to secondary and cold condition for two weeks at 50 °F (10 °C).

Follow the packaging and aging suggestions given in the all-grain recipe version.

1836, and also constructed a brewery in the same year. Initially, they made a dark, sweet table beer just for themselves. This product was first sold in 1861. The brewery shut down during World War I when the monks fled. It re-opened in 1922, which is also when it introduced a 7% double brown beer using unrefined beet sugar, based on the original beer but stronger. This beer has been called Dubbel since 1926.

The name dubbel is said by some to indicate double the ingredients — or strength, or original gravity (OG) — of that original table beer. I've never seen a recipe for that beer, so I don't know if this story has any truth to it. Perhaps if only original gravity is considered, it could be close. This would also make sense with the tripel for the same reason, since the tripel is more attenuated. This also ties into the Belgian notion of classifying beers by original gravity more than strength, which is the origin of the Belgian Brewing Degrees (essentially, whole numbers indicating the OG range — a 6 was for a 1.060-ish beer, an 8 indicated a 1.080-ish beer, etc.). These Brewing Degrees or Gravity Degrees are sometimes seen in the labeling of products, most famously beers from Rochefort (the 6 is their dubbel). It is just an alternate scale of measurement, like degrees Plato, Balling, or Brix.

Other breweries use color systems to mark their products, whether on the label, the cap, or the name of the beer. Chimay Rouge, Red, or Première is their dubbel. Rochefort 6 uses red as the number color. Westvleteren's example is marked with a blue cap, and is an 8, which is on the strong side. There is no real uniformity in color markings between breweries, but if a number is listed in this manner, it is the Belgian Brewing Degree.

The name dubbel is not uniformly applied to beers in Belgium since Belgians value originality more than conformity, so you may not always see it on the label from the brewery. While they may or may not believe in styles, many breweries have similar products. Dubbels are usually in the 7% ABV range and are reddish brown in color, so you can check these indicators as well.

The Westmalle Dubbel predates the arguably more famous Westmalle

Tripel, which was first made in 1933. However, Westmalle does lay claim to creating the two best known Monastic beer styles, dubbel and tripel, and their products remain the benchmark examples to this day. Their product names are borrowed to describe the beer styles in general, so some care should be taken when understanding whether the style or the example are being discussed.

SENSORY PROFILE

Belgian dubbels are moderately strong (6–7.5% ABV), reddish-copper colored, malt-forward beers with a complex, estery-spicy yeast profile and a dry finish. They share common features of other monastic beers in that they are top-fermenting, have a high degree of attenuation, are bottle-conditioned, and show a fairly aggressive yeast character that accentuates esters and phenols.

The color, strength, and malt balance distinguish them from other monastic beers. Belgian dark strong ales (or quads) share a similar color but are stronger and often richer. Tripels are stronger, paler, and more bitter. Singles are weaker, paler, and more bitter. Dubbels are similar in strength and balance to Belgian blonds, but are darker with a richer malt flavor and tend to use yeast with a more aggressive profile. Perhaps dubbels have a balance similar to German dunkel bocks, but use a Belgian ale yeast rather than a neutral lager yeast.

Dubbels tend not to be hoppy or overly bitter since the malt and yeast provide sufficient interest to the drinker. While some examples can exceed 7.5%, when versions get above 8% they start getting confused with Belgian dark strong ales. A strong alcohol flavor or warmth is not expected in a dubbel. Some think of dubbels as sweet beers, but they are usually malty and rich, not actually sweet. A dry finish is prized in most Belgian beers (Belgians call these beers more digestible), but the beers can have a malty palate and finish due to lower bitterness levels.

The malt flavor of a dubbel is moderate to moderately strong, and has an impression of richness with flavors of caramel, toast, or occasionally light chocolate, but never roasted or burnt flavors. The moderate fruity esters complement the maltiness, and can be like dark or dried fruits (raisins, plums, cherries), ripe banana, orange, or pome fruit (apple, pear, quince). Spicy, peppery phenols are low to moderate and complement the malt and esters. Hops may add a little spicy, floral, or herbal complexity, but they can also be absent. The bitterness is medium-low to moderate, which helps give a malty finish.

The body is medium to medium-full with medium-high carbonation that can add to the impression of body. Bottle conditioning gives a characteristic creamy sensation with its fine bubbles. The overall balance should be malty to nearly even with bitterness, with a relatively dry finish that leaves a malty aftertaste with yeast complexity.

BREWING INGREDIENTS AND METHODS

Belgian brewing methods are most appropriate for this style, which includes the selection of ingredients, the use of

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candi sugars or syrups, infusion mashing, and fermentation regimes that encourage ester development.

When I first started making Belgian beers, I tended to use English methods since I could see similarities in their approaches. For darker beers, I tended to pick pale ale malt because that is what British brewers would use as an equivalent base. But when I visited Belgian breweries, I found most just using Dingemans Pilsner malt as the base for everything. I think both work, so use a pale Belgian malt, with Pilsner malt being most authentic as the base. Richer base malts help increase the maltiness in darker styles, so I'm thinking Munich-type malts. Personally, I like including some dark Munich malt (like Weyermann Munich II, but other maltsters make similar products) in my beers, as I think the flavor is welcome.

Early recipes of mine used a variety of additional malts that I was able to source at the time to achieve complexity of malt flavor and color I wanted, including malts such as aromatic, CaraMunich, Special B®, and chocolate wheat. I would also use the rock-type candi sugar available at the time. However, once the candi syrups became available, I began simplifying my recipes to use these, which is the Belgian approach. Note that some Belgian brewers will add light amounts of dark malt for color adjustment. I know that reddish colors can come from small additions of black malts, but you really don't want the burnt and roast flavors, so tread lightly.

Belgian brewers tend to use infusion mashes, sometimes with steps, so that is the approach I use as well. I usually convert at lower saccharification temperatures (147–149 °F/64–65 °C) to drive attenuation, which is accentuated by the use of sugars and syrups. I often include dextrin-rich malts to provide some body since I don't want the beer to be too thin on the palate.

Hops are not a major part of this style, so the choice can vary between hops from Belgium, Germany, or England. Hops that have spicy, floral, or herbal characteristics are most desirable and authentic, as these complement the yeast character.

Yeast strains described as Trappist, abbey, or Belgian high gravity are likely to give a decent ester-phenol profile for this beer. The fermentation temperatures and methods can vary from brewery-to-brewery, so a wide range is possible. Belgian yeast strains often produce different characters under different conditions, so experience with the specific strain you are using helps. For instance, I know several breweries using yeast from Westmalle and Orval, but brewed under different conditions. If you can determine the source of a strain of yeast, getting one associated with one of the Trappist breweries often produces superior results.

Fermenter geometry can vary between breweries, but some Belgians are known to use shallow fermenters, not necessarily like coolships or spontaneous fermentation, just reducing the pressure to encourage ester development while also reducing the temperature increases during fermentation. In my experience, this can lead to differences in results when fermenting at "ambient" temperatures since shallow fermenters do not experience as big a rise in temperature as more narrow ones. Belgians tend to use periods of cool and warm conditioning to allow the yeast character to ripen and develop, while allowing the yeast to clean up some of their fermentation byproducts.

I tend to use carboys, start cool, and let the temperature free rise during fermentation to drive attenuation. Some strains do not like to be constrained in temperature, and will stop fermenting prematurely. Some yeast strains are stickier than others, and can lead to increased blowoff during fermentation. The Wyeast 3787 (Belgian High Gravity) strain I am most familiar with has both of these characteristics.

Some breweries use spice additions, but I don't think this style needs it. For example, Rochefort is known to add trace amounts of coriander seed to their beers. However, this character should never really be identifiable as such. If it is, too much was used. I mention it because some people believe the Belgian character comes from spices, when it is actually from the yeast.

Be wary of being told Belgians brew a certain way. I have seen very different methods used at various breweries, often with little attempt at commonality. Belgian brewers embrace individuality, not conformism, and are often skeptical of the notion of styles. It's OK to be creative and to experiment, but you will be judged by your results.

HOMEBREW EXAMPLE

My recipe is inspired by Westmalle, but is not a clone. I'm using the Westmalle yeast and their fermentation and conditioning schedule, but I'm targeting a beer that is a little less bitter than their current formulation (30 IBUs). If the yeast I specify is not available, another fruity-spicy Belgian strain is appropriate. I quite enjoyed the Achouffe yeast (Wyeast 3522 Belgian Ardennes) for its esters, and I think the Rochefort yeast (Wyeast 1762 Belgian Abbey Style Ale II) is another good choice.

My base malt is Pilsner malt from a Belgian maltster like Dingemans or Castle. Don't use a more heavily-flavored Pilsner malt, like the Weyermann Floor-Malted Bohemian Pilsner Malt or the Weyermann Barke® Pilsner malt – the flavor will be too biscuity or toasty. I use Weyermann Munich II for the dark Munich malt, which is an important driver of the malt flavor. I use any German Munich malt (Weyermann, Best, Durst, etc.) for the light Munich malt, but Belgian maltsters such as Dingemans will be more authentic, if they are available to you.

I use candi syrups for the fruity and caramelly flavors, with a mix of amber and dark specified. Don't use the extra dark (D-180 or higher) syrups, as I find these more appropriate for Belgian dark strong ales. If you have a choice in suppliers, look for something in the 45 SRM and 90 SRM ranges for the amber and dark varieties. In darker Belgian beers, I don't use intensive step mashing programs, but infusion mashing at the lower end of the saccharification range is appropriate to get the proper attenuation.

In a malty style, the hops take on a supporting role. I'm fond of the combination of Styrian Goldings and Saaz, so that's what I'm using. Other noble-type hops would work as well, but I would avoid anything with a modern American or New World character. The balance should be malty, with a very light late-hop note.

I hope you enjoy this style as much as I do. Just don't serve it in the wrong glass. . . BYO

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THE HOME OF FOAM & PILSNER

BYO Readers Soak Up Czech Republic's Deep Beer Culture

Brew Your Own readers and Publisher Brad Ring recently spent a week exploring the deep beer culture of the Czech Republic. From visiting the birthplace of the Pilsner beer style in Pilsen to the excitement of hop harvest in Žatec, it was a full week of truly special beer experiences.

Along the way we had the chance to meet with friendly local brewers and ask plenty of questions while enjoying their beers. There's really nothing better than trying tank samples in both the vast caverns of Budějovice Budvar and the much smaller cellar of craft brewery Zlatá Kráva while the brewer casually answers any-and-all brewing questions surrounded by homebrewers who love talking beer.

One of the most unique aspects of Czech beer is pouring their famous lagers using a side-pull faucet controlling the foam-to-beer ratio and creating completely different drinking experiences of the same beer. The *BYO* group took a fun and hands-on side-pull pouring workshop taught by Mira Nekolny, last year's winner of the best professional beer server in the country.

IT TASTES BETTER WITH FOAM

Žatec is one of the world's most famous hop growing regions. The group got to experience the fun and frenzy of their hop harvest including an annual hop harvest festival in the town center with local breweries pouring beer and everyone decorating themselves with fresh hop bines. They also had a memorable tour of the Czech Republic's largest hop producer, watching mountains of the region's signature variety Saaz get picked, processed, and kilned.

The *BYO* group toured the two big powerhouse Czech breweries. Budějovice Budvar is owned by the Czech Republic government and is home to the original Budweiser brand — sorry, St. Louis, you are a distant second. This Budweiser is a classic Czech lager packed with flavor with no resemblance to that other Bud. Pilsner Urquell is where the Pilsner beer style was first brewed on October 5, 1842. The huge brewhouse and unfiltered beer samples from barrels deep in the cellar were amazing but the highlight was a private tour of Pilsner Urquell's new onsite craft brewery Elektrárna and sampling a wide range of styles from barrel-aged stouts to pale ales.

The group also toured small breweries — some very new and others hundreds of years old. Prague's U Fleků has been brewing since 1499 (!) and their classic brewhouse turns out a world-class dark lager. Pivovar Obora was founded a bit more recently, in 2015 adding a brewery to their dairy farm. They grow their own hops and barley and are a true farm brewery in every sense crafting a range of great beers.

The week was a special chance to enjoy classic beer styles fresh and right at the source. We even slept overnight at several breweries, including one with a beer tap in each hotel room. All that beer had plenty of hearty Czech food paired alongside during the week providing ample fuel for taking a scenic hike to the next brewery stop. And it was a week made all the more special by sharing it with fellow homebrewers passionate about beer and exploring the incredible cities, countryside, and culture of the Czech Republic.

Our next *BYO* brewery trip with space available is New Zealand during their hop harvest March 5–12, 2026 with tours of local craft breweries, hop farms, and a malthouse. Details on this upcoming trip can be found at byo.com/trip. We hope you can join us on a future beer adventure. *Na zdraví!*

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THE BEER THAT DRINKS *like a Wine*

5 methods for homebrewing barleywines

by Terry Foster

I started my book *Brewing Barley Wines — Origins, History, and Making them at Home* by defining the style. I thought this would be the easy part of this book before digging deep into its history, brewing ingredients and methods, and offering recipes for homebrewers. But the more I considered it, the less certain I became. The style seems to have had something of a murky past, with modern definitions being somewhat arbitrary. We do know, of course, that it is originally an English style, but one which has been taken up in relatively recent times by American craft brewers. There is a complete and rather long section in the book where I look at the history of the style and at modern versions of the beer and tried to determine what the parameters of the beer should be.

I'll provide a definition, but I want you to understand that these defining measurements are my numbers and reflect my dislike of trying to pin down beer styles too precisely. I know I have written previously on putting numbers to beer styles in my books, but I have always regarded such attempts as mere guidelines — no one ever handed me stone tablets with specific instructions carved into them.

But, because numbers are required to understand styles, here you go:

OG = 1.080–1.140+ (20–32 °P)
FG = 1.025–1.035 (6.1–8.8 °P)
ABV = 8.5–13.5%+
IBU = 40–100
Color = Copper to dark red/brown

That is a rather broad description that includes a variety of beers (other than imperial stouts) with differing designations and which may not be regarded as barleywines by others. For example, double and triple IPAs would fit those parameters. Barleywines are best long matured so these IPAs would lose all their hop character on aging. They would then taste like a barleywine with a high hop bitterness. Indeed, I came across a double IPA from a local brewery and when I took a taste, I said "this is really a barleywine." The brewer agreed with me and said he called it a double IPA because his customers preferred IPAs!

In making this broad definition, I looked at the history of the style and at commercial examples and concluded that there is a huge variation in strength and bitterness in these beers and that a broad definition was appropriate. Besides, when brewing for your own pleasure you do not want to be limited by more narrow definitions such as those espoused by the Beer Judge Certification Program (BJCP) — you only need to follow those when entering competitions.

My definition could include styles such as old and stock ales, audit ales, October and March ales, Burton ales, Scotch ales, some double and triple IPAs, and even wheatwine. I realize this selection is quite arbitrary and if you have doubts about my selections, read the first chapter in my book where I go into the matter more deeply.

One of the oddities about commercial barleywines is that they may not be named that at all. From England we have Thomas Hardy Ale, J.W. Lees' series of Harvest Ales, and Fuller's Vintage Ale.

BREWING BARLEYWINES

Let's get away from the *what* and look at *how* and *why*.

Grains: Pale malt is, of course, the basis of barleywine. If you are going to go the all-grain route, any good 2-row pale malt, U.S. or English, is fine. If you want to be as traditional as possible and use English malts then go with the Maris Otter variety (or even Golden Promise). I am not sure it really makes any difference as I have also had good results with American 2-row pale malt. It is advisable to use a malt that you know what extract it gives you on your brewing system because this will help to ensure that you meet your target original gravity (OG).

It is important in brewing a barleywine from all-grain that before you start you make sure that your mash tun can hold the required volume. For example, let's assume that you want your barleywine to have an OG of 1.110, that you are going to sparge and collect a full 6–7 gallons (23–26.5 L) of wort, which you will boil down to 5 gallons (19 L), and that your brewhouse efficiency is 70%, so you will get a yield of 1.026/lb. (0.45 kg)/gallon (3.8 L). Then:

Total points required = 110 x 5 = 550
Weight of pale malt = 550 / 26 = 21.2 lbs. (9.6 kg)

That is a lot of grain that has to fit in your mash tun, and it will be accompanied by, say, 1.25 qts. (0.6 L) mash water per lb. grain, or 21.2 x 1.25 = 26.5 qt., or 6.6 gallons (25 L). That will be a total volume close to 10 gallons (38 L) and means you had better be sure that all this will fit into your mash tun *before* you start the brew. If you have only a 5-gallon (19-L) mash tun, you must obviously brew a lesser volume, 2.5 gallons (9.5 L) in the example above, or 3 gallons (11 L) at a lower original gravity. Check the volume of your mash tun by filling it with measured amounts of water. I know that is a bore and a pain, but you only have to do it once and it will avoid a lot of trouble down the road!

In fact, given that barleywine will be kept a long time and will be drunk only in small quantities and the work involved in handling such large amounts of grain, keeping to 2.5–3 gallons (9.5–11 L) is a good idea if you are new to the style. There are ways around this sizing problem if you do have a smaller mash tun, however, which I shall discuss later.

Caramel/crystal malts can be, and often are, included in a barleywine grain bill, although opinions differ about the wisdom or need to do so. The idea behind their use is to add some caramel and nutty flavors and, depending upon the caramel malt used, some red color hints in the finished beer. But such malts also contribute sweetness and some unfermentable sugar, both of which can make the finishing gravity of the beer higher than desirable. Caramel malts above 80 °L will be much redder in color, but can also be harsher in flavor and not, in my opinion, really suitable for barleywine. I would choose a 60 or 80 °L caramel malt if I were adding one, but some brewers prefer to use those at the lighter end of the range, say, 20–40 °L, since there is going to be significant color development due to Maillard reactions in a long boil, such as 3 hours or so as may be necessary in the basic method of barleywine brewing. Though, as you'll see in the story "Pro Tips for Brewing Barleywines" beginning on page 28, others embrace

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Though barleywine can be brewed with only base malt, many brewers prefer to layer in caramel malts of different colors for added flavor and color.

caramel malts even at higher Lovibonds. To each their own.

Malt extracts: If going the extract route, the first choice would be to use a pale extract to correspond with the pale barley malt used in all-grain brewing, especially if you wanted your barleywine to be on the pale side. Any good quality malt extract will be fine, but you should check with your supplier or the manufacturer as to exactly what yield a particular sample will give. Many brewers consider that Maris Otter grain malt is the best (and traditional) choice for barleywine, and there is a liquid extract available made only from Maris Otter. But if you want something darker in color, what do you do? You could, of course, steep a medium-grade of caramel malt (say 80 °L) in hot water at around 150 °F (66 °C) for 20 minutes or so, run the liquid into the boil kettle, rinse the grains again with hot water, add the rinses to the first running, then dissolve the malt extract and bring the wort up to boil volume.

Hops: Hop aroma and character are not necessarily a part of barleywine flavor and aroma. If these beers are to be long matured, perhaps for a year or more, then any hop aroma and character will have largely dissipated by the time the beer is drunk. Most of what you want from the hops is bitterness. I know that is something of a sweeping statement, and that some brewers, especially commercial brewers, might not wish to keep the beer so long before selling it. In fact, at Brewport Brewing Co., where I assist in brewing, we have matured a barleywine for just over a month before serving it on tap in the bar. That was partly because it was at the low end of the barleywine OG range (1.088) and partly because of limitations on tank availability, and we did put some of it into a couple of casks for longer aging. The point is that in the case of short maturation time you can late-hop or dry-hop your barleywine if you so wish.

But first, let's deal with bittering hops, and a couple of basic points. First is that alpha acid extraction and isomerization are not very efficient processes in worts of very high specific gravity. Or to put it another way, hop utilization is low in barleywine. In an all-extract brew, you can improve utilization by adding a good part of the extract towards the end of the boil. The second point is that hop residues hold up some of the wort after the trub settles out at the end of the boil. This means that you want to use as small an amount of hops as possible to avoid such losses. Therefore, for bittering you should use only hops high in alpha acid, say at 10% alpha and above. This limits your choice somewhat, but for bittering purposes you do not need to be too picky regarding hop variety. Note that I am not saying that low alpha acid hops cannot be used in barleywines, because of course they have been, especially those brewed before the latter half of the twentieth century. I am simply saying that the most practical and efficient use of hops requires that they be high in alpha acids.

You can use any high-alpha variety from any source: American (such as Columbus, Centennial, Magnum, Warrior, etc.), English (such as Admiral), German (such as Magnum, Polaris, etc.), Australian (such as Galaxy®), or New Zealand (such as Waimea™ and Green Bullet). Others you may consider are Galena (~12% alpha), Amarillo® (~11% alpha), Mosaic® (~12% alpha), Simcoe® (~11% alpha), Bravo (~13% alpha), Pacific Gem (~14% alpha), and so on. You might also consider Cryo® hops or other Type 45 pellet hops, which contain up to 26% alpha acids. Although most brewers use Cryo® hops for aroma these days, the original purpose of T-45 — or lupulin enriched — hops was to simply increase alpha acids by removing cone plant matter before pelletization. I have used Ekuanot LupuLN2® pellets as a bittering hop in brewing an all-extract barleywine at OG 1.094 with good results. At 22.8% alpha acids, it took only 1 oz. (28 g) in 4.7 gallons (18 L) for a nominal 90 IBUs, and gave a remarkably small amount of trub, minimizing wort loss on separation of the latter.

Calculating IBU levels is difficult because the utilization varies according to the gravity of the wort. Depending upon the brewing method used you will achieve only 10–15% utilization, so use the lower figure for OG above 1.110 and the higher value for OG 1.090–1.110 and plug this into whatever equation you use.

Yeast: Yeast plays a critical role in the brewing of barleywines. It can, of course, add flavors to the beer, depending upon the strain and on fermentation conditions. But the most important thing yeast must do in barleywine brewing is give good attenuation by pushing the final gravity down to less than 1.035, and preferably around 1.025, depending upon OG. In other words, you need it to ferment down to at least 70–75% of the OG or your beer will be cloyingly sweet, and the sweetness will overpower all other flavors. With most other styles and yeast strains this is not a problem, but in the case of barleywines the yeast is producing a lot of alcohol, to the extent that the alcohol can actually "poison" the yeast and inhibit it from forming more alcohol. That means that you need to pitch the wort with a lot of active yeast grown from a strain known to give good attenuation and ability to ferment high-alcohol styles.

What exactly does "a lot of active yeast" mean? Well, a commonly accepted requirement is to pitch with 1 million cells/mL/°P, (see, for instance, *Barley Wine*, Fal Allen and Dick Cantwell, 1998, Brewers Publications). For high-gravity beers a rate of 1.4 million cells/mL/°P is suggested in *Yeast* (Chris White and Jamil Zainasheff, 2010, Brewers Publications), and I would agree with that. This means that 5-gallons (19-L) of barleywine at 1.100 (23.8 °P) needs:

$$1.4 \text{ x } 10^6 \text{ cells/mL/°P x } 19 \text{ liters x}$$
$$23.8 \text{ °P x } 1{,}000 \text{ mL/L} = 600 \text{ x } 10^9 \text{ cells}$$

That is 600 *billion* cells, and that is what I mean by "a lot of active yeast."

Table 1 on page 26 gives yeast requirements for different original gravities, rounded for convenience. Looking at the table, you'll see a requirement of pitching about 6–8 packs of a liquid yeast, assuming 100 billion cells per pack. Further, these packs lose activity on storage so they need to be as fresh as possible. In prac-

Table 1: Barleywine yeast pitch rates

OG	OG as °P	Billion cells in 5 gal. (19 L)
1.090	21.5	570
1.100	23.8	600
1.110	25.9	690
1.120	28.0	750
1.130	30.0	800
1.140	32.1	850

tice, of course, you would not want to use so many packs and would probably prefer to make a starter.

Dried yeasts have the advantage of being quite stable when stored for long periods, losing perhaps only 10% of its activity over a year if stored in a refrigerator. One standard packet (11.5 g) contains about 200 billion active cells, so you would need 3-4 packets for a 5-gallon (19 L) brew if you are pitching it directly. Dried yeasts are generally less expensive on a single pack basis than liquid yeasts, so are even more economical on an active cell basis, so you may well be content to use four packs and not bother with making a starter. The disadvantage of dried yeasts is that not all strains are suited to the drying process, so there is a narrower range of strains available than is the case with liquid yeasts.

You want a strain that will give you at least 70–75% attenuation, and for barleywine an ale yeast is pretty much mandated. I like the Chico yeast — for example, the liquid Wyeast 1056 (American Ale) or the dried SafAle US-05 — as well as Lallemand Nottingham Ale yeast. I have also had good results with Wyeast 1098 (British Ale) and SafAle S-04. You should also use a yeast nutrient for all barleywine fermentations and oxygenate the wort before pitching if using liquid kräusen.

Remember that, in general, higher fermentation temperatures tend to result in more ester formation. Barleywines generate quite a lot of heat during fermentation, so try to control the temperature as much as possible. You need a good deal of head space in your fermenter as these beers generate a very high head of kräusen.

BREWING METHODS

There are at least five methods that can be employed to reach the high original gravity required for barleywines that are practical for homebrewers:

Method I – Use only malt extract. This is very simple, does not take a long time, and adding half the extract towards the end of the boil permits improving hop utilization, so this method is good for reaching high bitterness levels.

Method II – Straight grain mash, collecting all extract with sparging, then boiling down to your desired OG. This is the classic method for brewing barleywine, with the boil lasting hours. It is straightforward but very time-consuming. This method does result in the formation of Maillard products, which many regard as giving the best barleywine flavors.

Method III – Straight grain mash but collect only first runnings as in above example, then boil down to desired OG, or adjust gravity with extract or sugar to target value. Simpler and quicker than Method II but yields

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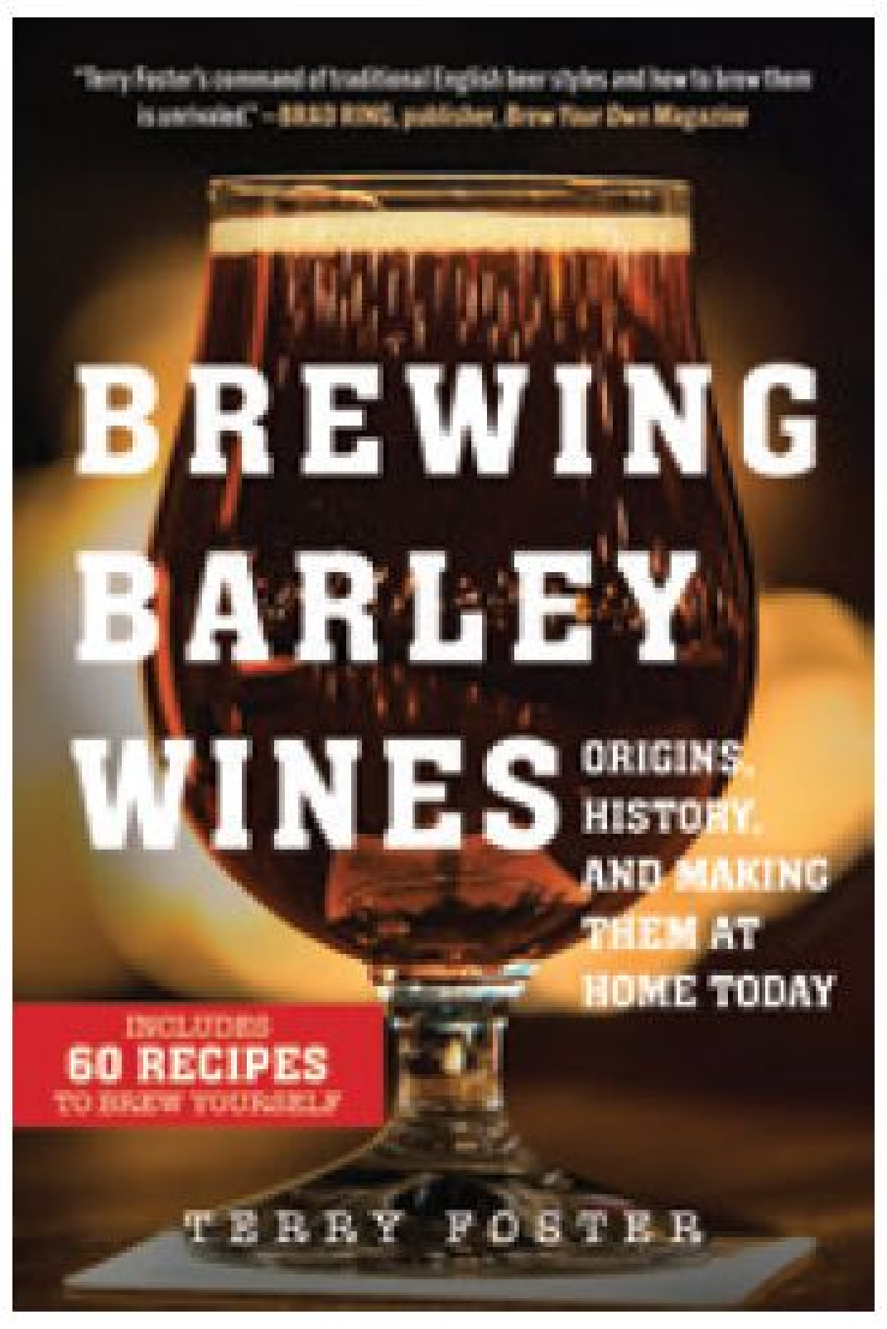
a smaller volume and less in the way of Maillard products. If you collect the second runnings from the mash you can brew a "lesser," lower-gravity beer with the second runnings – this, of course, is parti-gyling.

Method IV – Do two concurrent straight grain mashes, collect only first runnings from each, combine them and boil down or adjust with extract/sugar as required to reach target gravity. Obviously, this is quite complicated and time-consuming but, again, you could parti-gyle the second runnings from each mash. If you happen to have two mash tuns, you shorten the time!

Method V – Do a straight grain mash of medium target gravity, collect all wort and use as mash water for a second straight grain mash, collecting all run off with no sparging. Some brewers call this method reiterated mashing. On paper, this technique is additive, where a 12 °Plato (1.048 SG) wort used to replace mash water in the second brew results in a 24 °Plato (1.101 SG) final wort gravity (assuming the same grain bill). In practice, the second mash is not as efficient and you need to monitor wort gravity during the boil to hit your target. While not additive, it is close.

I would recommend Methods I and II as the simplest and most practical approaches for homebrewers, and I am providing a recipe using each method on this page. Whichever way you choose, a good barleywine is a wonderful, tasty sipping drink that will reward your efforts in brewing it.


BREWING
BARLEY
WINES
ORIGINS, HISTORY, AND MAKING THEM AT HOME TODAY
INCLUDES 60 RECIPES TO BREW YOURSELF
TERRY FOSTER

This article is adapted from Terry Foster's Brewing Barley Wines: Origins, History, and Making Them at Home Today *(Skyhorse Publishing, 2024).*

ALL TOGETHER ALE

(3 gallons/11 L, all-grain)
OG = 1.139 FG = 1.035
IBU = 90 SRM = variable ABV = 13.4%

This recipe uses the second method discussed in this article — the classic method for brewing barleywines — of an extended three-hour boil to reach the extremely high-gravity wort that will go into the fermenter. Note that the final beer will reduce from 6 gallons (23 L) at the start of the boil to 3.3 gallons (12.5 L) going into the fermenter (and around 3 gallons/11 L to be packaged).

INGREDIENTS

15.5 lbs. (7 kg) Maris Otter pale malt
41 AAU Target hops (180 min.) (3.5 oz./99 g at 11.6% alpha acids)
Yeast nutrient (as directed on package)
3 packs SafAle S-04 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Mash grain at 148–150 °F (64–66 °C), using 5 gallons (19 L) water (ratio 1.2 qt./lb., 2.5 L/kg). At 90 minutes perform a starch-iodine test and mash a further 30 minutes if positive for starch. Run off and sparge with water at about 170 °F (77 °C) to collect 6 gallons (23 L) of wort. Specific gravity of this wort should be about 1.077. Bring to a boil, add the bittering hops and boil down to 3.3 gallons (12.5 L); this may take about 3 hours. Cool to about 70 °F (21 °C), add the yeast nutrient and pitch the yeast. Ferment 10–14 days as close to 70 °F (21 °C) as possible. Rack to secondary for four weeks, rack again and leave for 6–8 months. Keg and force carbonate or prime and bottle, preferably allowing the beer to age a further six months or more. This beer should keep well for several years and I recommend that you do that with at least a portion of it.

KISS BARLEYWINE

(3 gallons/11 L, extract only)
OG = 1.127 FG = 1.036
IBU = 100 SRM = 9 ABV = 12%

This recipe uses the first method discussed in this article of getting all fermentable sugars from malt extract. It's easier and much less time-consuming than the previous recipe.

INGREDIENTS

12 lbs. (5.4 kg) pale liquid malt extract
23 AAU Simcoe® hops (80 min.) (1.8 oz./50 g at 13% alpha acids)
Yeast nutrient (as directed on package)
3 packs (35 g) SafAle S-04 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Bring 4 gallons (15 L) water to a boil and then remove from heat. Stir 6 lbs. (2.7 kg) extract into the water, taking care to see that all of it is thoroughly dissolved before returning to heat. Add the hops and boil for 60 minutes. Turn off heat and carefully stir in the remaining 6 lbs. (2.7 kg) of extract and boil a further 20 minutes. Cool to about 70 °F (21 °C), add yeast nutrient, oxygenate, and pitch yeast. Ferment 7–10 days as close to 70 °F (21 °C) as possible, rack to secondary for two weeks, rack again and leave for 3–4 months. Keg and force carbonate or prime and bottle, preferably allowing the beer to age a further six months or more. This beer should keep well for several years and I recommend that you do that with at least a portion of it.

Pro Tips FOR BREWING *Barleywine*

From recipe construction to barrel-aging

by Dawson Raspuzzi

Time for a confession. This story was supposed to be a short "Tips from the Pros" column. It was straightforward: I'd find a couple pro brewers who make well-regarded barleywines, get some insight homebrewers can apply on their own systems, and turn it into two pages. That's what "Tips from the Pros" is — some quick hitting info, ideally from brewers with different approaches on a subject. I ask the questions, they respond to each with a couple sentences, and I turn their answers into a column.

That plan went off the rails pretty quickly. I found four brewers whose barleywines are amazing and I wanted to include each. There was a good chance one or two wouldn't respond to my emails, and I'd be all set with two or three brewers for the column.

Well, they all eagerly agreed to share their insights, and I couldn't turn down the opportunity to hear what each had to say. That was the first factor in changing my approach. The second was they all had more to say than I anticipated, and it was all really great info. As I tried whittling down the answers to fit in the column space, I couldn't do it. It was apparent each brewer spent a lot of time with their answers. Each has their own approach to brewing barleywine, and it was clear they all hold this style that is becoming harder and harder to find on store shelves close to their hearts.

So we had to change the plan. Scrap the column this issue, and instead transform it to an additional feature, as told by four brewers who aren't afraid to fill their mash tons to the brink, extend boil times, throw a bunch of sugars into the boil kettle, and sometimes wait years before tasting the final result. I think you'll agree with the decision to share their responses in full. As you'll see, even pros approach this high-octane style in different ways.

Photo courtesy of Shutterstock.com

JOHN HARRIS founded Ecliptic Brewing (Eugene, Oregon) in 2013, after a quarter-century in the craft beer industry including roles as the Brewmaster of Deschutes and Full Sail. He's now the Brand Director for Great Frontier Holdings, which bought Ecliptic in 2023. Ecliptic's Orange Giant barleywine won gold at the 2024 Great American Beer Festival.

NED VAHSHOLTZ is Head of Brewing Operations at Wichita Brewing Company in Kansas, which consists of two brewpubs and a production facility with multi-state distribution. Wichita's Chris Barley in a Little Coat barleywine won Bronze at the 2023 Great American Beer Festival.

How important is the choice of base malt for a style like barleywine that often relies so heavily on specialty malts, and what's your preference?

JOHN: Using your favorite pale malt is just fine. Barleywine can be any color you want except black. Unless it's a black barleywine. Using some Munich in the 10+ Lovibond (°L) range can build up the toasty malt flavors in conjunction with your pale malt. If making a golden barleywine I would go for a darker pale ale malt and also Munich, and maybe some honey malt to really build that deep rich golden color

NED: I prefer to split the base malt allocation in half between Maris Otter and 2-Row. For me, this helps reduce some earthy/dirty tones I pick up from an all-Maris Otter base malt bill.

BRAD: I have had great results using all Maris Otter or all Golden Promise for the base malt. I have also used these malts in a blend with 2-row. For Munichwine, I use Munich malt (10 °L) as the base malt, which is super good too.

BOBBY & TYLER: We've tried a variety of combinations when it comes to base malt, as we have made barleywines with 2-row, pale ale malt, Munich, and Maris Otter. They all tend to lend their own nuances to the beers. Most of the time we go with 2-row as our base malt and then add in more specialty malt (Munich and crystal malts) to bring the flavor and maltiness to the beer. We don't see a ton of difference between 2-row, pale ale, or Maris Otter because when you are adding in specialty malt, you can lean on those malts to do the heavy lifting on the flavor. Specialty malts will mask the flavor contributions that Maris Otter provides when compared to 2-row. We have never brewed a barleywine with just straight base malt, but we believe this is where a malt like Maris Otter would shine and bring those flavors of a traditional malt barleywine to the beer.

How many/what specialty malts do you usually include in barleywine recipes?

JOHN: Orange Giant, which just won Gold at the 2024 Great American Beer Festival, features a very rich orange hue. I have made others through the years that were more of a deep red color. These colors come from caramel or crystal malts. I find layering different Lovibond colors helps build the caramel flavors. Say 40 °L for a clean, light caramel and up to 80 °L for a rich flavor. Once you start using 120+ °L malts you must be careful about getting a burnt flavor, unless that is what you want. Using some Weyerman Carafa® dark malts can help bend the color without adding too much flavor in very low amounts. It really gets down to how much of the depth of caramel you are looking for.

NED: Our barleywine, Chris Barley in a Little Coat, uses six different malts. We start with a 50/50 split of Maris Otter and 2-row. Beyond that it's a combination of four different medium- to high-Lovibond crystal malts in rough increments of 5% of the grain bill each, which help to layer a bit of complexity.

BRAD: There is always some Munich, oats, caramel malt (120–135 °L) such as Simpsons DRC®, Dingemans Special B® or Weyermann Special W®. I will also use chocolate malt, honey malt, or aromatic sometimes. I work with about eight different barleywine recipes at Private Press, and they are all a little different.

BOBBY & TYLER: Typically, we like to include anywhere from 3–6 specialty malts in our barleywine recipes, de-

BRAD CLARK is the founder and operator of Private Press Brewing in Santa Cruz, California. Clark has specialized in creating barrel-aged, malt-forward beers for almost two decades and is now focused exclusively on barrel-aged imperial stouts and barleywines.

BOBBY KROS (left) started brewing professionally in 2013. In 2017, he and Scott Strain opened a 20-barrel production brewery in La Vista, Nebraska, called Kros Strain Brewing.
TYLER PAWELKOP (right) is the Barrel Manager/Brewer at Kros Strain Brewing. He has been in the beer industry for over 15 years.

pending on the barrels we are using for aging. These malts will have an impact on the flavors and color contributions we want to come out in the finished beer. We will add 15% Munich or Vienna malt to add a touch of maltiness, 10% light crystal malt (10–40 °L) or honey malt to add a nice sweetness, 3–5% medium crystal malt (50–80 °L) to bring in caramel and toffee notes, and 1–2% darker crystal malts (90–180 °L) for more complex caramel and dried fruit flavors. Sometimes we have brought in 0.5–1% of pale chocolate or brown malt to give slight flavors of coffee or chocolate in the finish.

What IBU range do you target, and are hop additions simply for bitterness in this style, or do you do any late hop additions too?

JOHN: The higher, the better. Orange Giant is just shy of two years old when released. IBUs over 70 will really allow the beer to age out. It makes for a sharp beer at release, but all the hops will meld over time with the malt character and really allow the beer to shine. Where you add them is a brewer's choice. A good, stiff, upfront charge and a big whirlpool dose is what I like. Another thing to consider is dry hopping. A good 2 lbs. per bbl (1 oz./gallon or 7.5 g/L) will allow the hop flavor to help with the aging. If you plan on aging the beer in tank for a while it's best to wait to do the dry hop before packaging

NED: A good target for IBUs in barleywine is roughly half of the intended original gravity (OG) decimal point number. This helps keep the beer from being too malty-sweet, and perceived bitterness remains subdued. For instance, if we plan the OG to be 1.090, then I would try to build our calculated IBUs to around 45. Most of the IBUs come from high-alpha acid, early boil additions, however, I don't mind an end-of-boil addition of East Kent Golden (EKG). Chris Barley uses a 0.4 oz./gallon (3 g/L) end-of-boil addition of EKG. I like this because it provides noticeable changes in the drinking experience as it ages and that late addition fades away.

BRAD: I shoot for around 25 IBUS, with just one hop addition early in the boil for bittering.

BOBBY & TYLER: We typically aim for around 65 IBUs for the barrel-aged versions of our barleywines. We tend to use a standard bittering hop like Hallertau Magnum, which is added into the kettle for the last 60 minutes of the boil. We have done a couple barleywines where we have played around with a whirlpool addition of Galaxy® (20–30 IBUs) and we have gotten some great results. It adds a great citrus/orange character to the beer, which was still quite prevalent after 18 months in the barrel. We haven't tried any other type of hops but we feel like fruit-forward hops might work well here.

What OG are you usually targeting, and what approach do you use to help get there?

JOHN: Some say you start with only pale malt and boil it for a couple days to get the color. That's hard in a production scenario. I believe in getting terminal below 2.5 °Plato (1.010 specific gravity), 2 °Plato (1.008 SG) if you can. Do the math to figure out where your OG would be to hit target alcohol. I find 9% ABV is a good starting point for right away drinkability. If you want to age it out, push it above 12% ABV. I find a 2-hour boil is good for these beers.

NED: Chris Barley comes in around 1.113 OG. We do use some light brown sugar and corn sugar to reach that high gravity. Combined, they make up about 14% of the fermentable ingredients by weight. Our boil is the same as any other beer we make, 60–90 minutes.

BRAD: I am shooting for 32–35 °Plato (1.139–1.154 SG) for my OG. I always add some sort of sugar — brown, dried malt extract, liquid malt extract, honey, or maple syrup. I don't boil much longer than 2–3 hours, so sugar is my friend.

BOBBY & TYLER: We've found that our best results have been when we targeted a window of 1.132–1.144. To do this, it takes two brews to hit our gravity. We take the first runnings from our first brew, which is around 1.092, and start boiling that right away. We collect the second runnings on the first batch and use it for the mash water on the second batch. This bumps up the initial gravity on the second brew to around 1.116. On this next batch, we collect the first runnings and add it directly to the boil kettle. By this time, the wort from the first batch has already been boiling for around five hours and the combined wort is around 1.116–1.120. This is when we start our 3-hour boil timer and add all of the different sugars. We will add demerara or turbinado sugar (5%), and then sometimes we add dark Belgian candi syrup (5%). These will bring in those nice molasses-type characters that tend to go really well with the specialty malts. Depending on where we want our desired OG to land, we can either extend the boil or add golden light dried malt extract to bump up the gravity. Overall, our total boil time is usually around 8 hours for our barleywines.

As a homebrewer, would you (or did you) approach brewing a barleywine differently than you do now?

JOHN: There's not really any difference. Your equipment will limit you. If you have no refrigeration, keep the beer under 77 °F (25 °C) during fermentation at max. If you have temperature control then 70–72 °F (21–22 °C) is good.

NED: As a homebrewer on a smaller brewing system, I think I would entertain the idea of a longer boil time than what we can do and have time for on our production system. Smaller systems have a faster boil-off rate, and possibly achieve a harder boil as well depending on heating source. I think that would be a good way to yield some complexity in the malt flavors. Or they could try only collecting the first wort runnings and stick with that for a high-gravity style like this.

BOBBY & TYLER: As a homebrewer, I never had the opportunity to barrel-age my barleywines in an actual barrel. Typically, I would brew the beer, give it around 10 days to ferment out completely, then I would crash the beer to try and get all the yeast out of suspension. After a couple of days at 32 °F (0 °C), I would transfer the beer to a Corny keg that had been purged very well with CO_2 and add my oak cubes (1–2 oz./5 gallons or 30–55 g/19 L). I preferred using medium- to heavy-toast American oak that had been soaking in some of my favorite whiskey/Bourbon for a couple of months. I would let the oak cubes sit in the Corny keg for a couple of months at ambient temperature, then I would place the beer in the cooler. I would clean, sanitize, and purge another keg and transfer the beer into the new keg. There might be a bunch of sediment in the initial tank if the beer was not clarified, so be sure to pour through that before filling up the new keg. After transfer, I would adjust my CO_2 regulator to around 6.5 psi and let it force carbonate to around 2.2–2.3 volumes for a week and then enjoy it.

Do you have a preference for English/American yeast? What characteristics do you look for from the yeast?

JOHN: Chico yeast has been great to get a clean ferment and good terminal gravity. Pitch twice as much as you usually do.

NED: I think both are very similar, to be honest, especially in a big beer like a barleywine where the strengths of the other ingredients are going to be most noticeable. I would suggest using the variety that favors the barleywine style you are aiming for — American vs. English. We've used English with great results.

BRAD: I like using a combination of Chico and Wyeast London Ale III. About 75% Chico, 25% London III, which keeps the fermentation moving and doesn't throw too much green apple, even at 68 °F (20 °C). There are some recipes that use all London Ale III, which I ferment at 64 °F (18 °C).

BOBBY & TYLER: Our go-to yeast for barleywine is London Ale III, which is also our house yeast for hazy IPAs, as we prefer the smooth caramel flavors and low bitterness of the English-style barleywines. We tend to ferment barleywine at around 66 °F (19 °C), which is on the lower end of the range for this yeast, but it adds great mouthfeel and also brings some nice esters that go really well with the specialty malts. We tend to mash around 144–148 °F (62–64 °C) due to the lower attenuation (60%) of this yeast when fermenting these bigger beers.

Do all of your barleywines get barrel-aged? And how long do they age prior to release?

JOHN: Not all need to be barrel-aged. If you do barrel-age yours, make sure to save a portion of straight barleywine so you can compare how the two different versions aged out. The best barrel-aged barleywines, say in Bourbon barrels, take at least 11 months. What happens is at first you get the heat and fire of the Bourbon. Some will pull off then, and the beer is harsh. You need months, say 5–11, or more, to get all the wood character in the beer. Oak, vanilla, smoke, they all take time.

NED: No, we usually don't mess around with barrels. We have done so in the past, but the barrels were rather neutral and contributed very little barrel characteristics to the final beer. If anything, it might have helped give the beer a more velvety mouthfeel.

BRAD: I do not release any barleywines that are not barrel-aged. My barleywines range from 10–30 months spent in barrel.

BOBBY & TYLER: We have never released a barleywine that hasn't been barrel-aged. The amount of bitterness that we put into the barleywines does not lend well to a non-barrel-aged version. If I were to make a non-barrel-aged version, I would probably bring the IBUs in around the lower 20s.

Our barleywines age for 18 months at a minimum, but they have gone as long as 36 months. We sample the barrels twice during the 18-month period. After sampling, we decide if the beer should sit longer or if we are going to rack it into another barrel or package the beer with or without adjuncts. We have done some double and triple barrel-aging, which adds to the complexity of flavors as well. When barrel-aging for this long, you will have to account for barrel loss (the angel's share). We do not top up our barrels, so as the water evaporates it concentrates the flavors, raises the ABV, and adds to the mouthfeel of the beer.

What changes do you taste in these beers as they mature over months or years?

JOHN: The beer will start to oxidize, and if all goes right, only in the good ways. The caramel flavors will get richer and the hops mellower. Late in 2023 I tapped a 1998 Full Sail Old Boardhead barrel-aged barleywine keg. Perfect aging conditions. It was outstanding and surreal at 25 years old.

NED: As mentioned before about the late hop addition we add, the younger the beer is the more that is noticeable at the start. Within six months or so, the late-hop character gives way and more of the malt depth comes through. In terms of years, I tend to notice the perceived sweetness continues to climb. After a few years or so, I don't notice any notable changes.

BRAD: I look for oxidation to calm the intensity of the base beer and the barrel. There is a zone where the beer becomes softer and more palatable, which is what I look for.

BOBBY & TYLER: Beers that have aged in barrels that are younger tend to be more spirit-forward and have woody character. Barrels with a lighter toast tend to have more fresh wood, hints of vanilla, coconut, and even some herbal notes. Medium-toast barrels have more spice notes like cinnamon or nutmeg, and caramel, toffee, and dried fruit characters such as fig or dates can also be present. Heavy toast brings out more of the chocolate, coffee/espresso, spice, campfire, marshmallow, and tobacco characters. American oak tends to have more vanilla character than French oak. Aging a beer for a longer period in barrels will allow the beer to extract more flavors and layers of complexity. Knowing what a certain barrel's character will give you will not only help with deciding if the beer is ready to package or spend more time in another barrel, but also with recipe development.

Any unique spirit barrels you've aged barleywine in that you'd recommend homebrewers try to replicate?

JOHN: Bourbon or a dark spirit barrel is good. Gin barrels that had Old Tom are good as well.

BRAD: Bourbon always works! Cognac has been fun, and Port can be a nice blending component as well.

BOBBY & TYLER: One of our most unique releases was a barleywine that we aged in French oak barrels with a medium-toast level. These barrels were first used to age Port wine and then Bourbon. The outcome was complex flavors and aromas of dark fruits, berries, dark chocolate, a hint of espresso, almond, vanilla creaminess, cinnamon, and toffee. Additionally, the tannins from the Port gave it a slightly dry finish. We also aged a barleywine in oak barrels that contained Bourbon, then aged maple syrup. This imparted huge flavors and aromas of maple syrup, butterscotch, cinnamon, campfire, and marshmallow with a sweet candy character finish. If you wanted to try to replicate these at home, but didn't have access to barrels like these, we'd recommend soaking oak chips or cubes in Bourbon for a good length of time, then soaking in Port wine or maple syrup.

Any other barleywine brewing advice for homebrewers?

JOHN: Keep the tradition going. It's hard to find these beers nowadays.

NED: 1. Try to stick with ingredients originating from the country for the style you wish to brew.

2. Use a variety of specialty malts in different Lovibond colors to layer complexity. Stay away from roasted malts though.

3. Mash in at 150–152 °F (66–67 °C). The beer will already be malty and sweet, so you don't want to promote under-attenuation with a higher mash temperature.

4. Pitch incredibly healthy yeast and lots of it, and maybe even consider a second pitch once fermentation is 50% done. And use yeast nutrients.

5. Don't be afraid to boil longer if needed to reach a higher OG. Or add sugar. You don't want to leave yourself with too low of an ABV in the end, especially if you plan to age the beer for a year or two.

BRAD: Don't overthink it. Barleywine is more about the age, oxidation, and depth. It is not about hop profile, adjuncts, or genetically modified yeast. Start with high-quality European malt and take your time with it.

BOBBY & TYLER: Try different types of wood. Make a 5-gallon (19-L) batch of barleywine and split it into five different 1-gallon (3.8-L) batches, each on a different type of wood, different toast level, or with oak alternatives aged in different spirits. You will be able to see what each version brings to the table and which you prefer.

If you use a small barrel, like a 5-gallon (19-L) barrel, you have to remember you will have a bigger oak surface area and it will take less time to extract all the barrel characters you are looking for. Be sure to purge out the barrel with CO_2 before you rack the beer to prevent initial oxidation.

Another thing to try is experimenting with different sugars. There are a lot of sugars out there that have very unique flavors to them, which could add a nice complexity to a barleywine. BYO

New Malts TO BREW WITH

(Re)Introducing heritage grains & cutting-edge malts

by Adrian Febre

When I started brewing a bit over a decade ago, I felt spoiled by what seemed like an unlimited number of malts to brew with, sourced from seemingly every beer-brewing country in the world. Things have only improved since, and the fact that you can now brew almost exclusively with floor-malted, heritage variety barley malted anywhere from Castleford, West Yorkshire, to Alameda, California, is nothing short of staggering.

But the resuscitation of historic barley varieties isn't the only story in malting in the last few years. In addition to ushering in a heritage barley renaissance, maltsters have also responded to the growing number of styles we've been brewing (and distilling) by adding multi-tasking grains (lightly kilned malted oats, for example), malts with names like "IPA Malt," and even grains free of a compound that leads to oxidation, prolonging the shelf life of beers brewed with them.

And while you're increasingly likely to stumble across these new malts at your local homebrew store, we thought we'd compile a list with many of these new entries in order to showcase the breadth of maltster's cutting-edge offerings, as well as to highlight some malts we thought deserved to be brewed with. So, without further ado, here are some great new malts that have become available to homebrewers over the last couple years, starting with some of those lovely, complex, heritage malts.

Photo courtesy of Weyermann Specialty Malts

HERITAGE MALTS

As a lover of all things malt, I've been delighted to see a renewed focus on complex malt flavor driven by base malt itself (can you tell?), and part of that movement has been a focus on resuscitating flavorful (but perhaps less disease-resistant or lower-yielding) barley varieties of the past, as well as traditional (but arduous) malting practices like floor malting. The following malts utilize one or both of those to produce some killer "new" (very old) malts.

CHEVALLIER® HERITAGE MALT - CRISP MALT (U.K.)

Color: 2.6–5.5 SRM
Extract Potential: 76.7%
Tasting Notes: Deep maltiness with a marmalade-like sweetness and subtle notes of fresh bread.
Why to consider it: Per Crisp, it was the dominant barley variety in the U.K. from the 1820s–1920s. Quite the feat!
Where to use it: Golden ales, barleywines, IPAs, and DIPAs.

HANÁ HERITAGE MALT - CRISP MALT (U.K.)

Color: 1–2.1 SRM
Extract Potential: 76.7%
Tasting Notes: Freshly-baked bread, clean, and smooth.
Why to consider it: Haná was the variety of barley used in the very first Czech Pilsners more than 175 years ago.
Where to use it: Blonde Pilsner-style lagers.

HERITAGE GOLD MALT - BRIESS MALT & INGREDIENTS CO. (U.S.A.)

Color: 3.8 SRM
Extract Potential: 82%
Tasting Notes: Complex bread character with honey, biscuit, and floral notes.
Why to consider it: This is the new domestic heirloom offering — a base malt made from an heirloom variety, and traditionally malted in the style of an English ale malt.
Where to use it: Styles where malt complexity is desired — from dark Belgian beers (at lower rates) to malt-forward English ales (as the primary base malt).

Photo courtesy of Weyermann Specialty Malts

Eraclea Pilsner Malt is made from 2-row Italian Adriatic Coast winter barley.

ISARIA 1924® - WEYERMANN SPECIALTY MALTING (GERMANY)

Color: 3.4–4.4 SRM
Extract Potential: 78%
Tasting Notes: Malt sweetness and a soft biscuit-like aroma.
Why to consider it: Isaria 1924® is made from the oldest German certified malting barley variety, officially approved for beer in, you guessed it, 1924.
Where to use it: Traditional and/or unfiltered lagers like Kellerbier, festbier, and Zoiglbier.

NO. 19 MARIS OTTER® ALE MALT - CRISP MALT (U.K.)

Color: 2.1–3.4 SRM
Extract Potential: 80.6%
Tasting Notes: Bold bready backbone with a complementary sweetness and malty afternotes.
Why to consider it: Just like a nice jar of vanilla paste is a complex wonder, so too is this floor-malted classic Maris Otter, indispensable in brewing rich, complex British ales. It has a deeper flavor than the conventionally kilned Maris Otter malts.
Where to use it: Best bitters, porters, barleywines, or in anything else showcasing complex British malt flavors.

BASE MALTS

While a return to tradition has been part of the base malt story, some other really interesting innovations have been occurring in the sci-fi land of malting in recent years. The entries below portend the future of malt, whether that be special milling techniques, malt varieties selected for health reasons (!), or a more style-driven approach to malting.

ERACLEA PILSNER MALT - WEYERMANN SPECIALTY MALTING (GERMANY)

Color: 1.1–2.1 SRM

Photo courtesy of Briess Malt & Ingredients Co.

Synergy Select Pilsen Maltgems® is a Pilsner malt in which the majority of the husk, fine grit, and flour have been removed.

Extract Potential: 80.5%
Tasting Notes: Malt sweetness with light honey notes.
Why to consider it: This malt is made from 2-row Italian Adriatic Coast winter barley, and cultivated around Eraclea near Venice; if you're looking for Italian Pilsner terroir, this is your malt.
Where to use it: Classic Mediterranean beers from Mediterranean-style lager (like Italian Pilsner) to Italian grape ale.

IPA MALT - GAMBRINUS MALTING (CANADA)

Color: 2–2.5 SRM
Extract Potential: 79%
Tasting Notes: Bread, toast, grain, and a slight nuttiness.
Why to consider it: A base malt specifically made for IPAs — what else need be said?
Where to use it: Hop-forward West Coast IPAs, hazy IPAs, DIPAs (or anything else with a ton of hops in the recipe forumlation).

NORTH STAR PILS™ - RAHR MALTING CO. (NORTH AMERICA)

Color: 1.3–1.8 SRM
Extract Potential: 79%
Tasting Notes: Overtones of honey and sweet bread, with notes of hay and a nutty character.
Why to consider it: The domestic barley selection grows richer every year, and this low-color, low-modification lager malt is a very cool addition to the ensemble.
Where to use it: Use this malt for the base of pretty much any classic or new-age lager style.

PILSNER ZERO MALT - VIKING MALT (EUROPE)

Color: 1.5–2.2 SRM
Extract Potential: 80%
Tasting Notes: Malty, slightly nutty, and sweet.
Why to consider it: This is a "LOX-less" variety of Pilsner malt, meaning it is made from a barley variety that does not produce the lipoxygenase (LOX) enzyme. This mediates certain oxidation reactions in beer, thus extending the shelf life of your beer by reducing the overall rate of oxidation and staling, while also contributing to increased head retention.
Where to use it: This malt should be used in any Pilsner malt-based beers where you'd be concerned about oxidation, e.g., light lagers, hoppy beers, or in batches that may not be consumed too quickly.

SYNERGY SELECT PILSEN MALTGEMS® - BRIESS MALT & INGREDIENTS CO. (U.S.A.)

Color: 1.8 SRM
Extract Potential: 83.3%
Tasting Notes: Clean, sweet, with notes of bread, cracker, and honey.
Why to consider it: This malt is a classic Pilsner malt with a twist: The majority of the husk, fine grit, and flour have been removed to minimize bitter/astringent flavors.
Where to use it: Pretty much anything

you'd use Pilsner malt in, particularly less-hopped beers where the base malt character is dominant.

ADJUNCTS

An influx of new base malts seems to be the main malt story of the last few years, but we'd be remiss not to highlight some of the cool new adjuncts that maltsters have cooked up as well:

CRYSTAL RED MALT - BRIESS MALT & INGREDIENTS CO. (U.S.A.)

Color: 200 SRM
Extract Potential: 75%
Tasting Notes: Pronounced caramel, burnt sugar, raisins, and prunes.
Why to consider it: This is a classic drum-roasted crystal malt that's been roasted specifically to enhance its redness.
Where to use it: This malt can be used in almost any style that isn't ultra pale, contributing gold through orange/red and up to deep red hues depending on usage rates.

DEXTRIN MALT - RAHR MALTING CO. (NORTH AMERICA)

Color: 1.2–2.2 SRM
Extract Potential: N/A
Tasting Notes: Bready, grainy, and raw barley flavors (more prominently at higher usage rates).
Why to consider it: As lagers and hazies soar in popularity, a malt that can boost body, haze, and foam is a very powerful tool to have around.
Where to use it: Hazy IPAs, lagers, stouts, or wherever you'd like a boost in head retention/mouthfeel.

HONEY MALTED OATS - GAMBRINUS MALTING (CANADA)

Color: 3–6 SRM
Extract Potential: N/A
Tasting Notes: Bready, grainy, and sweet notes with a rich body and smooth, silky mouthfeel.
Why to consider it: Oats meet honey malt — malty sweetness and favorable oat characteristics in one package (and they have husks, so no need for hulls!).
Where to use it: Hazy IPAs, oatmeal stouts, brown ales, or any other malt-driven styles.

Photo courtesy of Gambrinus Malting

Gambrinus Honey Malted Oats combine the characteristics of their honey malt with malted oats.

PARTING WORDS

This was in no way a comprehensive list, and I'd love to shout out a few of the other maltsters that deserve a hearty hurrah for their recent additions to our grain bins, namely:

- **Warminster Maltings**, a traditional floor-malting operation in the U.K. with a great, classic U.K. line including brown malt and mild ale malt that hit the U.S. homebrewing scene in mid-2021.
- **Prairie Malt**, a Saskatchewan, Canada, maltster that's part of the Boortmalt Group, features a number of malts (including another one of those very cool LOX-less base malts) that have started to trickle into homebrew shops.
- **Admiral Maltings** based in California's Bay Area, which is producing some superbly cool malt including a recent collab with Crisp that married Crisp-grown Haná barley with Admiral's floor malting to yield a superb lager malt.

And having said all that, there's one thing left to do — brew! To that end, we have two very special recipes for you that each use one of the malts highlighted in this story.

The first comes to us from Hanabi Lager Co. based in Napa Valley, California. They brew some incredible traditional, grain-forward lagers on their drool-worthy custom decoction brewhouse using truly esoteric (and flavorful!) malted barleys like Purple Egyptian and Bere, and their recipe for Haná Pilsner featuring Crisp's Haná malt, one of those wonderful "new" heirloom variety malts, is a crystal-clear lens through which to examine those subtle malt complexities.

The second recipe, for Whistlestop Oatmeal Stout, utilizes Gambrinus's multifaceted Honey Malted Oats to lend a toasted oatmeal sweetness to an already smooth and easy-drinking stout, was sent over by Forgotten Star Brewing Co. based in Fridley, Minnesota. Built in a storied WWII manufacturing facility, Forgotten Star sports quite a few award-winning beers.

Hanabi Lager Co.'s Haná Pilsner clone

(5 gallons/19 L, all-grain)
OG = 1.047 FG = 1.012
IBU = 20 SRM = 4.2 ABV = 4.7%

Hanabi Lager is quickly gaining an international reputation for developing a new class of Pilsner- and helles-style lagers that are rich and complex in flavor, unusually so for these lager categories, into which they only loosely fit. They focus exclusively on rare and heirloom grains, brewing with them on their custom decoction brewhouse, and presenting them through the pure, cold-fermented lens of lager.

INGREDIENTS

9.5 lbs. (4.3 kg) Crisp Haná Heritage Malt
1.3 oz. (36 g) acidulated malt
3.8 AAU Tettnang hops (60 min) (1 oz./28 g at 3.3% alpha acids)
3.8 AAU Tettnang hops (15 min) (1 oz./28 g at 3.3% alpha acids)
3.8 AAU Tettnang hops (5 min) (1 oz./28 g at 3.3% alpha acids)
White Labs WLP802 (Czech Budejovice Lager), Wyeast 2000-PC (Budvar Lager), or Mangrove Jack's M84 (Bohemian Lager) yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Mash-in with ambient temperature water (Napa Valley water is silica-rich with moderate calcium, and low alkalinity), and then apply heat to raise the temperature to 101 °F (38 °C). Once there, pull the first (30% v/v) decoction, bring to 148 °F (64 °C), hold until iodine negative, raise to boil, boil 10 minutes, then return to the main mash. Adjust main mash temperature to 131 °F (55 °C), hold 5 minutes, then pull the second 25% v/v decoction. Bring the second decoction to 148 °F (64 °C), hold until iodine negative, then raise to a boil for 10 minutes, then return to the main mash. Adjust main mash temperature to 146–148 °F (63–64 °C), hold until iodine negative. Pull the third decoction (30% v/v), ramp straight to boil, boil 10 minutes, then return to the main mash. Adjust temperature to 172 °F (78 °C), hold 10 minutes, then transfer to the lauter tun.

Photo by Suzanne Becker Bronk Photography

Vorlauf until wort is clear and then lauter the boil kettle.

Boil 69 minutes, adding hops according to the schedule. Whirlpool, and then cool wort rapidly to 42 °F (6 °C). Pitch yeast and aerate thoroughly if using liquid yeast.

Ferment at 50 °F (10 °C), carbonate via spund/bung valve when gravity is 1.020. Taste daily until diacetyl and related carbonyl aroma compounds have dropped to acceptable levels, and then cool 1 °F (0.5 °C) per day until you reach 39 °F (4 °C), rousing the yeasts as needed for proper flavor/texture/conditioning. Rack to secondary (under pressure), and lager at 39 °F (4 °C) for up to three months. Bottle under counter-pressure.

Forgotten Star Brewing Co.'s Whistlestop Oatmeal Stout clone

(5 gallons/19 L, all-grain)
OG = 1.057 FG = 1.016
IBU = 20 SRM = 27 ABV = 5.4%

This stout is rich and robust with a harmonious blend of roasted nuances and a delightful oatmeal sweetness that comes from two unique oat products — Simpsons Golden Naked Oats® and Gambrinus Honey Malted Oats.

INGREDIENTS

7.6 lbs. (3.5 kg) Maris Otter pale malt
10 oz. (285 g) Simpsons Golden Naked Oats®
1.3 lbs. (0.6 kg) Gambrinus Honey Malted Oats
10 oz. (285 g) Weyermann chocolate wheat malt
1.3 lbs. (0.6 kg) Weyermann Munich malt
4 oz. (113 g) Simpsons chocolate malt
3 AAU Magnum hops (90 min.) (0.2 oz./6 g at 14.4% alpha acids)
2.5 AAU Fuggle hops (30 min.) (0.5 oz./14 g at 5% alpha acids)
4 AAU Crystal hops (5 min.) (0.75 oz./21 g at 5% alpha acids)
Wyeast 1058 (American Ale), White Labs WLP001 (California Ale), or SafAle US-05 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Mash the grains at 154 °F (68 °C) for 60 minutes. Raise mash to mash-out temperature of 168 °F (76 °C) and lauter as normal. Collect enough wort pre-boil to allow for 5.25 gallons (20 L) in your fermenter.

Boil for 90 minutes, adding hops as per the schedule. At the end of the boil, cool wort to slightly below fermentation temperature, 65 °F (18 °C), and pitch yeast (aerate if using liquid yeast). Ferment at 67 °F (19 °C) until complete.

Rack to a keg and force carbonate or add priming sugar and bottle condition. BYO

Photo courtesy of Shutterstock.com

New Hops

TO BREW WITH

Tropical fruit and citrus character still leading innovation

by Drew Jackson

Anchovy hops? Are you kidding me?

Yes, there is a new hop called Anchovy. Does it taste like anchovies? Well, no. It is described as having flavors like watermelon, raspberry, and pine. But the name alone is an attention grabber. When a brewery sponsors acreage for a new hop variety, they can sometimes name the hop when it goes into production. This new hop was given the name Anchovy by Matt Storm and Brian Strumke from Fast Fashion Brewing in Seattle, Washington. They wanted to make a beer called "Hot Pizza" with the new hop and thus the unusual hop name choice.

So, is it just marketing? Does it work? Yes. The hop is already sold out in smaller homebrew quantities at Yakima Valley Hops. The name alone got my attention, and other brewers will probably have the same initial reaction. Whether it is hype or not, we makers of beer usually want to brew with hot new hops ourselves.

We are fortunate to be in the golden age of hop experimentation and innovation. The evolution from basic bittering and aroma hops to the nuanced, complex flavors found in modern hazy and juicy beers has opened up a whole new world for brewers. With the soaring popularity of these "juicy" beers came hop flavors in addition to just bittering or aroma. The range of flavors and aromas that can now be achieved with different hop varieties and techniques is truly staggering. It is a very exciting time when it comes to the science of beer, giving homebrewers the opportunity to benefit from all this science to make better beer.

The variety of new hops hitting the market every year is, indeed, a big part of the thrill for us homebrewers. Each new hop variety brings its own unique profile — some with tropical fruit notes, others with floral or piney characteristics. The challenge and excitement lies in finding the right combination to create a beer that really stands out. Add to this the discovery of different ways to use hops in the brewing process and we have even more creative and varied flavor profiles. It might just be time to explore these new hops and redesign a few of those old recipes.

In this article, I'll delve into the latest hop varieties to become available to homebrewers, examining their unique characteristics and how they can be integrated into your brewing process. Whether you're looking to craft a groundbreaking IPA or refine a classic style, these new hops offer fresh possibilities to enhance your creations.

Note: Some of the hops listed here are designated by a combination of letters and numbers. Those that start with "HBC" are from the Hop Breeding Company, a joint venture by Yakima Chief and John Haas. This collaboration led to the development of Citra®, Mosaic®, and more; "HS" = Hopsteiner, which is also located in the Yakima valley; "YQH" = Yakima Quality Hops.

ALORA™ (PREVIOUSLY HS17701)

The name Alora™ is of Latin origin meaning "beautiful dream, dreamlike, or divine light." Alora™ is best known for its unique oil composition. Unlike most hop varietals that contain what those in the industry call the "big 8" oil groups (pinene, myrcene, limonene, linalool, caryophyllene, farnesene, humulene, and geraniol), Alora™ contains over 50% of unidentified total oil uncommon in hop chemistry. Further analysis has revealed a large percentage of this "unidentified" category type to be selinene – a sesquiterpene rarely found in hops. Selinene is a low-volatility compound that imparts distinct citrus character directly into finished beer and can be found in fruits such as calamondin oranges and yuzu fruit.

Aroma: Peach, yuzu fruit, sweet melon, apricot

Typical Analytical Range:

Alpha Acids: 7–10%

Beta Acids: 3.5–4%

Total Oil (mL/100 g): 0.8–1.3

What Pros are Saying:

Obed Salazar – Assistant Brewmaster, North Coast Brewing Company

"I have used both Alora™ and Anchovy with great success. I preferred the expressiveness of Alora™ over Anchovy because the aroma was perceived as actual fruit (yuzu and sweet melon) when compared to the pleasant but slightly candy-like aroma of watermelon that I perceived from Anchovy."

Darren Stankey – Marketing Manager, Hopsteiner

"I have done trials, and found in the wild, combinations that use Sultana™, Lemondrop™, Lotus™, and our latest experimental HS16660 with Alora™ (are) all excellent combinations, but Alora™ is also great as a single-hop recipe."

ANCHOVY

Initially, it went by the name 24B-05 but was given the controversial name Anchovy by Matt Storm and Brian Strumke from Fast Fashion Brewing. Fast Fashion was the first brewery to sponsor acreage, so they got first cracks at brewing with it and the beer was well received. There is a limited amount of this hop available, but the expectation is acreage, and availability, will increase in the coming year.

Aroma: Watermelon, raspberry, pine

Typical Analytical Range:

Alpha Acids: 11.5%

Beta Acids: 3.6%

Total Oil (mL/100 g): 1.4

What Pros are Saying:

Steve Gonzalez – Sr. Manager of Brewing & Innovation, Stone Brewing Co.

"Anchovy has a lot of depth. Some overt watermelon and green notes on the front of the palate with some interesting, sweet aromatics and a touch of dankness on the back end. It's a fun hop to use as a substitute in ale styles for hops like Citra® or Amarillo®, also for hops with long finishes and real depth of flavor! Could it work in lagers? We're about to test that, but I don't know for sure!"

ELANI® (PREVIOUSLY YQH-1320)

Elani® was discovered by Yakima Quality Hops Owner Tim Sattler in Idaho's St. Joe River Valley and is likely the result of open cross-pollination. Tim brought rhizomes back to Yakima Valley and after years of trials it hit the market in 2022. Tim describes Elani® (pronounced ee-LAH-nee) as "clean and bright. With tropical, citrus, and stone fruit."

Aroma: Pineapple, guava, lime, white peach, orange zest

Typical Analytical Range:

Alpha Acids: 9–11%

Beta Acids: 6–7%

Total Oil (mL/100 g): 1.3–2

What Pros are Saying:

Geoff Belcher – Head Brewer, New Realm Brewing Co. (Charleston, SC)

"I got to trial this hop early on as YQH-1320. The hop sounded beautiful with the citrus and stone fruit notes in the descriptor in particular . . . The first beer I brewed with this was a 100% Elani® cold IPA to really see what this hop was all about on a super clean canvas and to let those citrus and stone fruit notes shine. It did not disappoint! (A recipe for this beer is on page 46.)

"For the homebrew environment I would say this hop plays well with Citra®, Simcoe®, Centennial, Nelson Sauvin™, as well as many others."

KRUSH™ (PREVIOUSLY HBC 586)

Originally bred in 2007 by the Hop Breeding Company experimental hop variety program, Krush™ went through a thorough 17-year process as an experimental variety and was officially released as a commercial hop brand in 2024. Krush™ bursts with citrus (orange), tropical (mango, guava), stone fruit (peach), berry (mixed berry), and woody (resin) characteristics that deliver complex, ripe, and punchy aromas.

Aroma: Berry, citrus, stone fruit, tropical, woody

Typical Analytical Range:

Alpha Acids: 10–14.1%
Beta Acids: 6.3–9.4%
Total Oil (mL/100 g): 1.3–3
What Pros are Saying:
John Leingang – Head Brewer, Nine Mile Brewing

"Citrus, pine, tropical tones, stone fruit notes . . . so complex, for sure!

"It does tend to take over other hops if used it higher amounts."

Michael Tonsmeire – Co-Owner/ Brewer, Sapwood Cellars

"We recently released a dry-hopped mixed-fermentation with it in collaboration with Mieza Blendery (Experimental Phase) and dry hopped a DIPA (Boy Have You Lost Your Mind) with it a few years ago. It has a really over-the-top stone fruit, almost-thiolized, character to me . . . It has given some really bright fruit-forward aromatics without much green/dankness. I tend to like beers with a balance of fruit and other more 'savory' balancing notes to remind the drinker that it isn't just juice, so I like to pair it with a Citra®/Simcoe®/Mosaic® if there isn't something like the underlying funk of a barrel-aged sour."

VISTA

The newest hop variety released from the USDA public breeding program. It was selected by brewers in blind smell tests at Yakima Valley Hops back in 2019. They ranked it 7/10 on a potency scale. It should work well in IPAs and pale ales, but it is also a good fit in lagers and Pilsners.

Aroma: Tropical fruit, tangerine, melon, pear, green tea
Typical Analytical Range:
Alpha Acids: 11–12%
Beta Acids: 4–5%
Total Oil (mL/100 g): 1–2
What Pros are Saying:
Eric Sannerud – Sannerud Hop Consulting

"The strongest aroma I perceive is melon. I like that it is bright, clean, and dry."

John Leingang – Head Brewer, Nine Mile Brewing Company

"Overall, Vista tends to be an amazing supporting hop with pretty much any newer American varietal. It's got range to exist in a bunch of different styles of beer, usually as a stalwart support role. Vista has been a crucial key player in terms of brightening up the other varietals (Idaho 7 and El Dorado)."

WCHB-102 (PREVIOUSLY 2B)

This is the second hop to be released by West Coast Hop Breeding and gained notoriety among many when hyped up by John Kimmich at The Alchemist. The hop shows superior disease resistance and is attractively priced. This "late-pick" hop is vigorous and can be grown both conventionally and organically. WCHB-102 has a clean, citrus-forward profile with hints of lime zest, melon, and pine resin, and a high aroma impact of apple and pear. This hop can stand alone or be paired to increase the layered, rich range.

Aroma: Citrus, lime zest, melon, pine, apple, pear
Typical Analytical Range:
Alpha Acids: 11.2%
Beta Acids: 5.3%
Total Oil (mL/100 g): 1.82
What Pros are Saying:
John Kimmich – Co-Owner/Brewer, The Alchemist Brewery

"I have had very successful results using this hop. I have used it in several batches of Skadoosh over the last couple of years, and they have all been very pleasing. I was drawn to using it when I first was given a small sample of the first crop a few years back. Unique and interesting to say the least.

"I have used it as a single-hop, which was great, and I've used it with various others. It could certainly stand alone, but it loves to be complemented with the right choice of additional varieties"

Eric Sannerud – Sannerud Hop Consulting

"One of the few hops I have given a 5 in sensory analysis. The apple/pear aroma will work well with a variety of other hops and adds complexity."

ZUMO

Discovered in the Segal Ranch open-pollination hop nursery years back, Zumo was first released in 2023 and is already becoming a favorite amongst breweries such as Other Half, Stone, and Russian River. Brewers who have already brewed with Zumo describe it as citrus, citrus, and more citrus. A prominent lime note makes it a perfect fit for Mexican lagers, but it has

Photo by Michael Ivancic

This photo of the inside of a Vista hop cone is from Logboat Brewing Co. Production Manager Michael Ivancic's first encounter with the new variety at CLS Farms in Yakima, Washington, in 2022. "I remember picking big, deep green, almost golf ball-sized cones off the bine and being impressed with the aromatics that came out when we tore the cones open."

also performed well in big IPAs.

Aroma: Lime zest, orange, citrus
Typical Analytical Range:
Alpha Acids: 5.5–6.5%
Beta Acids: 4–5%
Total Oil (mL/100 g): 0.5–1
What Pros are Saying:
Vinnie Cilurzo – Owner, Russian River Brewing Company

"The aroma is delicate but that is OK as the lime quality the hop gives the beer is distinct. We are using it in our 2024 release of Pliny for President in the dry hop. It also works really well in a beer we make called Zumo Wresting, which is technically a West Coast Pilsner.

"A positive for the hop is the fact that it does not have super high alpha acids, and thus a brewer can use more of it in the whirlpool and not see the bittering units jump up too much."

Steve Gonzalez – Sr. Manager of Brewing & Innovation, Stone Brewing Co.

"Lots of both bright, fresh, and also warm lime and candy flavor from this hop. I prefer it in fuller-bodied IPA styles like juicy hazies and in dry-hopped lagers. It performed just fine in West Coast IPAs, but it really needs a lot of malt character to express itself best for me, whether that is Pilsner malts or a generous helping of malted wheat and malted oats. The low bitterness from this hop makes it safe to go heavy handed on the whirlpool side!"

There are a couple more hops I want to highlight because they are making waves in the craft beer scene, though the supply in the homebrew market is limited right now. We expect they'll become more widely available to homebrewers soon:

EXPERIMENTAL HS16660

Experimental HS16660 has yet to receive a name, but we wanted to highlight it for its high-intensity aroma that is high in geraniol composition and even higher in free 4MMP thiols — which are responsible for the sought-after flavor and aroma of tropical and sweet fruits. The 4MMP thiol levels land off the charts in comparison to other hop varieties.

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Aroma: Tropical fruit, berry, fruit candies, citrus
Typical Analytical Range:
Alpha Acids: 10–13%
Beta Acids: 3–4%
Total Oil (mL/100 g): 2.3–2.8
What Pros are Saying:
Darren Stankey – Marketing Manager, Hopsteiner

"HS16660 will be receiving a name soon. It has already been a hit with brewers who have trialed it and folks are coming back for more. Keep a look out for this new one that will be making its commercial debut soon."

PEACHARINE

From Freestyle Hops in New Zealand, Peacharine has a rich peach/nectarine character with an appealing citrus backbone that includes sweet fruit, lime zest, and indistinct floral notes. Homebrew quantities are hard to come by, but given the positive press it has gotten from the pros who have used it (such as Trillium, Toppling Goliath, Tree House, The Alchemist, Fidens . . .), we'd expect availability to increase in the near future. Peacharine can be used in a single-hop beer, but also pairs well with a wide range of both thiol- and terpene-heavy varietals like late-harvest New Zealand Cascade.

Aroma: Peach, nectarine, citrus, sweet fruit, lime zest
Typical Analytical Range:
Alpha Acids: 6.1%
Beta Acids: 6.2%
Total Oil (mL/100 g): 2.1
What Pros are Saying:
Geoff Belcher – Head Brewer, New Realm Brewing Co. (Charleston, SC)

"I honestly think Peacharine is super unique and nothing would really be close on substitution. I've found that it plays nice with your more resinous Chinook, Cascade, and Simcoe® hops."

Excited to brew with some of these new hop varieties? I know I am. To get started, two pros interviewed for this story were gracious enough to share proven recipes featuring a couple of the highlighted varieties, found on the following pages.

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New Realm Brewing Co.'s Elani Cold IPA clone

(5 gallons/19 L, all-grain)
OG =1.058 FG = 1.008
IBU = 64 SRM = 3 ABV = 6.6%

This is the first recipe Geoff Belcher, Head Brewer at New Realm Brewing Co.'s Charleston, South Carolina, location brewed with Elani® as it provides a clean slate for the hop. The resulting beer is bursting with citrus and stone fruit flavors and aromas.

INGREDIENTS

9 lbs. (4.1 kg) Pilsner malt
2.7 lbs. (1.2 kg) flaked rice
11 AAU Elani® hops (60 min.)
  (1 oz./28 g at 11% alpha acids)
4.4 AAU Elani® hops (10 min.)
  (0.4 oz./11 g at 11% alpha acids)
2 oz. (56 g) Elani® hops (whirlpool)
5 oz. (142 g) Elani® hops (dry hop)
1 Whirlfloc tablet (15 min.)
SafLager W-34/70, Wyeast 2124 (Bohemian Lager), or
  White Labs WLP830 (German Lager) yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Mash the malt and flaked rice at 150 °F (66 °C) for 60 minutes. Raise mash up to mash-out temperature of 168 °F (76 °C) and lauter as normal. Collect enough wort pre-boil to allow for 5.25 gallons (20 L) in your fermenter.

Boil for 60 minutes, adding hops as per the schedule. At the end of the boil, cool wort to 180 °F (82 °C) and add the whirlpool hop addition. Stir wort vigorously to create a whirlpool, cover, and leave for 20 minutes.

Cool to 65 °F (18 °C) and pitch yeast (aerate if using liquid yeast). Ferment for seven days and then add the dry hop addition. After three days, rack to a keg and force carbonate or add priming sugar and bottle condition.

New Realm Brewing Co.'s Elani Cold IPA clone

(5 gallons/19 L, extract only)
OG = 1.058 FG = 1.008
IBU = 64 SRM = 3 ABV = 6.6%

INGREDIENTS

5 lbs. (2.3 kg) Pilsen dried malt extract
1.4 lbs. (0.6 kg) rice syrup
11 AAU Elani® hops (60 min.)
  (1 oz./28 g at 11% alpha acids)
4.4 AAU Elani® hops (10 min.)
  (0.4 oz./11 g at 11% alpha acids)
2 oz. (56 g) Elani® hops (whirlpool)
5 oz. (142 g) Elani® hops (dry hop)
1 Whirlfloc tablet (15 min.)
SafLager W-34/70, Wyeast 2124 (Bohemian Lager), or
  White Labs WLP830 (German Lager) yeast
¾ cup corn sugar (if priming)

STEP BY STEP

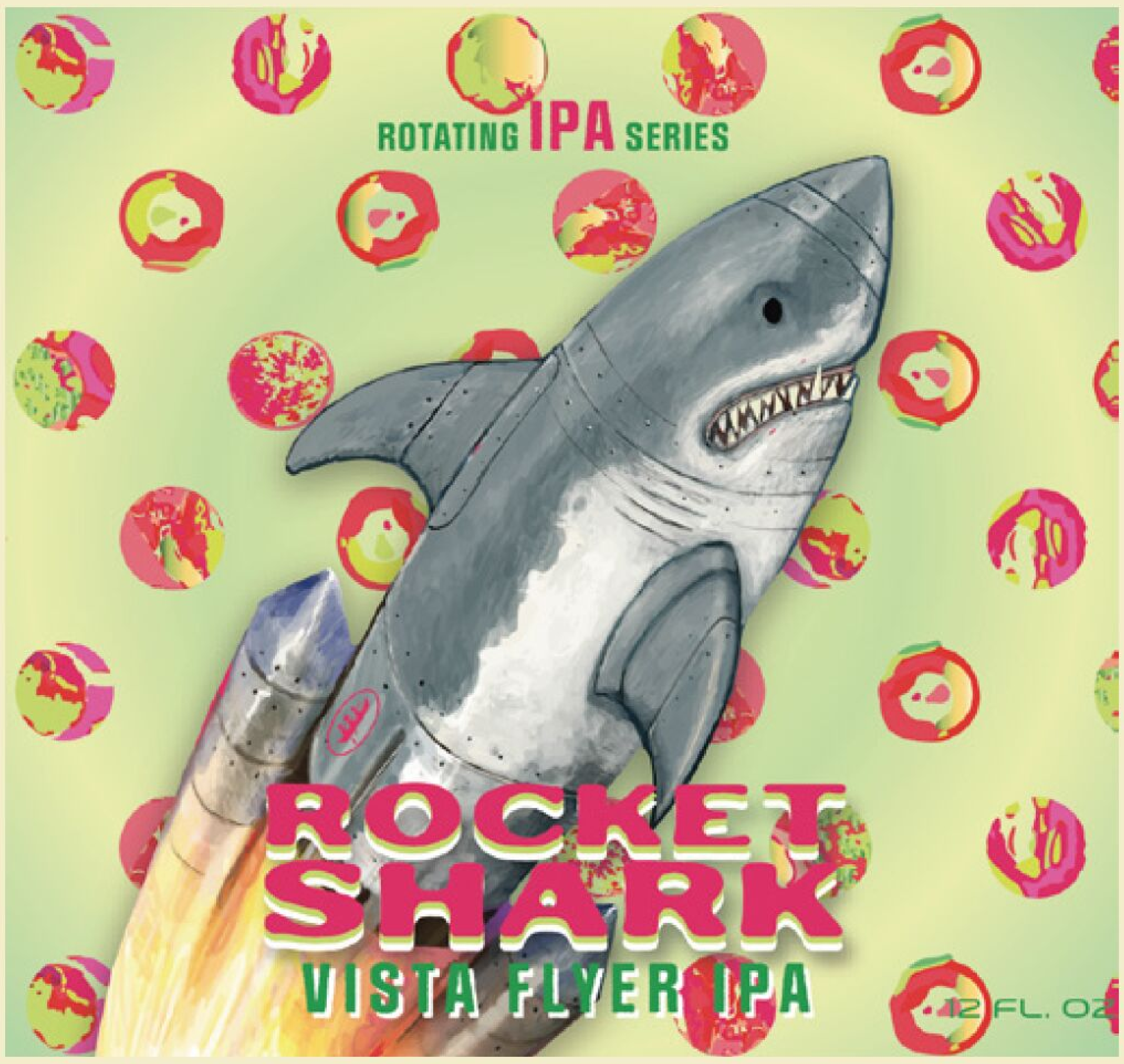
Heat 5.5 gallons (21 L) of water to 180 °F (82 °C) in the brew kettle. Remove from heat and carefully stir in the malt extract and rice syrup until dissolved. Return to heat and bring to a boil.

Boil for 60 minutes, adding hops as per the schedule. At the end of the boil, cool wort to 180 °F (82 °C) and add the whirlpool hop addition. Stir wort vigorously to create a whirlpool, cover, and leave for 20 minutes.

Cool to 65 °F (18 °C) and pitch yeast (aerate if using liquid yeast). Ferment for seven days and then add the dry hop addition. After three days, rack to a keg and force carbonate or add priming sugar and bottle condition.

Logboat Brewing Co.'s Rocket Shark Vista Flyer clone

(5 gallons/19 L, all-grain)
OG = 1.068 FG = 1.009
IBU = 28 SRM = 7 ABV = 7.8%



This was the fifth iteration of Logboat's rotating IPA Rocket Shark Series in which the brewers wanted to explore and experiment with Vista. "Rocket Shark Vista Flyer is a juicy IPA featuring a unique blend of hops for a layered taste experience. Vista, Nelson Sauvin™, and Huell Melon hops contribute notes of bright tropical fruit, white wine, big strawberry, and subtle gooseberry. An Ideal IPA for those who love a big, fruity beer with depth and nuance," said Jason Woody, the brewer who designed the recipe.

INGREDIENTS

12.1 lbs. (5.5 kg) Rahr 2-row pale malt
12 oz. (340 g) Rahr white wheat malt
12 oz. (340 g) Weyermann Carafoam® malt
4 oz. (113 g) Weyermann acidulated malt
5.6 AAU Magnum hops (60 min.)
(0.4 oz./11 g at 14% alpha acids)
0.9 oz. (26 g) Vista hops (whirlpool)
0.6 oz. (17 g) Huell Melon hops (whirlpool)
0.3 oz. (9 g) Nelson Sauvin™ hops (whirlpool)
0.9 oz. (26 g) Vista hops (dry hop #1)
0.6 oz. (17 g) Huell Melon hops (dry hop #1)
0.3 oz. (9 g) Nelson Sauvin™ hops (dry hop #1)
0.9 oz. (26 g) Vista hops (dry hop #2)
0.6 oz. (17 g) Huell Melon hops (dry hop #2)
0.3 oz. (9 g) Nelson Sauvin™ hops (dry hop #2)
Omega OYL-004 West Coast Ale I, White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or SafAle US-05 yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Mash the grains at 152 °F (67 °C) for 60 minutes. Raise mash to mash-out temperature of 168 °F (76 °C) and lauter as normal. Collect enough wort pre-boil to allow for 5.25 gallons (20 L) in your fermenter after the boil is complete.

Boil for 60 minutes, adding the Magnum addition at the start of the boil. When the boil is complete, add all of the whirlpool hops and stir the wort vigorously to form a whirlpool in the kettle. Cover and let sit for 20 minutes.

At the end of the whirlpool, cool wort to slightly below fermentation temperature, 65 °F (18 °C), and pitch yeast (aerate if using liquid yeast). Ferment at 67 °F (19 °C). Add the first dry hop addition in a muslin bag on day four of fermentation. On day 7, pull the first dry hop addition and add the second addition, being careful to keep the fermenter flush with CO_2. After three days, rack the beer to a keg and force carbonate or add priming sugar and bottle condition as usual.

Extract plus grains version:
Substitute the pale, wheat, and acidulated malts for 6.8 lbs. (3.1 kg) light dried malt extract, 8 oz. (230 g) wheat dried malt extract, and ½ tsp. 88% lactic acid. Add the crushed Carafoam® malt to a muslin bag and place in your kettle with 5.5 gallons (21 L) of water. Heat the water to 180 °F (82 °C). Remove grains and bring to a boil. Remove the kettle from heat and carefully stir in the malt extract and lactic acid. Return to heat and bring to a boil. Follow the remainder of the all-grain recipe, adding water to the fermenter up to 5.25 gallons (20 L), if necessary, at the start of fermentation.

Tips for Success:
When Logboat brewed Vista Flyer on its 30-barrel system it omitted any bittering hop addition because their whirlpool addition takes 45 minutes to drain. On their equipment, the whirlpool addition alone contributes a calculated 28 IBUs. Homebrewers could try something similar of forgoing any hop addition at the start of the boil and instead extending the whirlpool, though they will also need to add a step to keep the wort closer to boiling temperature as small batches will naturally cool much quicker than the volume Logboat brews. Adding a bitterness charge at the start of the boil is what Logboat does when formulating recipes on their pilot system to simulate the longer whirlpool. "Depending on your whirlpool regimen you may need to add a clean/neutral bittering addition to achieve that 28 IBU — we usually have to do that on our small-scale pilot to mimic the IBU we pull from the whirlpool on the 30-barrel system," said Logboat's Production Manager Michael Ivancic.

Any high-alpha, clean hop can be used for bittering. Hop extract would be another good choice. BYO

HORTON HOUSE
EST. 1747
GEORGIA'S FIRST BREWERY

Photo courtesy of Jekyll Island Authority

Jekyll Beer of Yesteryear

The history behind the state of Georgia's first brewery

by Peter Dillon

While touring Jekyll Island, Georgia, many years ago, our trolley guide pulled into the Horton Historic District describing the Colonial ruins in front of us. Then he beamed and said, "here was the site of Georgia's first brewery." The locals are quite proud of this brewing history, so much so that the Jekyll Island Mosaic Museum recently celebrated the 277th anniversary of the original ale produced with a tasting event called the Jekyll Beer of Yesteryear.

In early 2024, the museum staff contacted Silver Bluff Brewing Company in Brunswick, Georgia, about coordinating a celebratory activity in honor of the state's first beer. Silver Bluff Brewing had spent years restoring a historic building in the downtown business district to use for its brewing operations, taproom, and beer garden, before opening in July 2020. The taproom has 16 taps featuring a wide variety of beer styles, all brewed in-house. The company's passion for historic preservation and its experience brewing so many different beers made it an ideal collaborative partner. Of course, the ultimate challenge of the collaboration would be a recreation of the 1747 brew.

The Museum's Educator, Patrick Carmody, and William Melvin, Silver Bluff's Director of Brewing Operations, worked with their respective staffs to put together an informative and tasty evening on May 11, 2024. About 30 patrons gathered on the patio behind the Jekyll Island Mosaic Museum and were entertained with live music while awaiting the start of the celebration. The beer tasting part was introduced by Melvin and started with a variety of Silver Bluff's traditional offerings. Melvin described the beers, which he noted were available on tap at the brewery or in cans at either the brewery or in stores. Then the gathering was divided in half with one group meeting with Carmody and the other group meeting with Melvin.

Carmody related Jekyll Island's long association with beer, from the first ale produced in 1747 through World War II. Between 1886 and 1947, some of America's wealthiest families owned the island and operated the Jekyll Island Club. Among them was J. Herbert Ballantine from a prominent family of New Jersey brewers. At the time he joined the club, Ballantine was the fourth largest brewery in the country, and the largest brewer of ale in the United States. The company produced a lager, a porter, a bock, a brown stout, and a pale ale.

Melvin's session compared the brewing methods of Colonial times to modern brewing. The groups then traded speakers and when the discussions were finished and the questions answered, everyone returned to the patio for the pièce de résistance — Silver Bluff's Jekyll Island Historic English Ale, served in commemorative pint glasses. Melvin noted that since the ale was brewed especially for this occasion, he did not plan to brew it again once the supply ran out in the taproom. He remarked later to me that recreating an ale brewed 277 years ago presented numerous challenges and required some assumptions. Given the fledgling colony's British origins, he believed East Kent Golding hops and an English yeast would most closely reflect the original ale. Melvin explained that the beer wasn't intended to be the same exact beer that was brewed so long ago, but a beer that would taste similar in order to give modern drinkers an understanding of what the first beer brewed in Georgia likely would have tasted like.

"We didn't have any recipes or records of the first beers brewed in Georgia at Horton House, but we wanted to create something that showed how beer in the 18th century could have varied from most beer today. We used British malt and a fair amount of crystal malt in order to try and approximate the rich malty flavor and low finishing gravity beers of that time, often from poorly modified malt and a direct-fired boil," Melvin explained. "The resulting brew is not a true historical recreation, but more of an historically inspired ale designed to give the drinker an idea of the ways in which these Colonial beers tasted very different from beer today."

Melvin shared the recipe (on page 52), but before we get to that, I'd like to share the story behind this 1747 brew. Carmody related that General James Edward Oglethorpe and his British board of trustees in London founded the colony of Georgia in 1733, the last of the original 13 Colonies. General Oglethorpe insisted upon four principles for his vision of a new utopian society: No hard alcohol, no lawyers, no Catholics, and no slaves. British settlements were established along Georgia's Atlantic coast, including Fort Frederica on Saint Simons Island. While drinking there was

Photo courtesy of Jekyll Island Authority

Photo by Peter Dillon

The Horton House ruins where the first commercial beer in the state of Georgia is believed to have been brewed in 1747 still stands on Jekyll Island. The sketch provided by Jekyll Island Authority shows what the building would have looked like in Colonial times.

officially discouraged, a National Park Service Ranger at today's Fort Frederica National Monument observed that at least six taverns were operating inside the settlement by the 1740s.

The British government did not initially fund the fledgling enterprise, but still viewed General Oglethorpe's colony, and Fort Frederica in particular, as a defensive bulwark against Spanish colonial expansionism from Florida. The Spanish threat soon flared into open conflict in 1739 when the War of Jenkins' Ear erupted and 600 British troops plus their families were sent to the garrison at Fort Frederica to shore up the settlement's defenses, according to the National Park Service. Fort Frederica was initially built to house only 400 colonists and with the additional military contingent, the population bloomed to nearly 1,000, creating a challenge for sanitation and water resources.

Meanwhile, General Oglethorpe granted his primary military aide, Major William Horton, 500 acres on nearby Jekyll Island, a small barrier island just south of Saint Simons Island. As a condition of his land grant, Horton was expected to bring over from England 10 indentured servants and have 20% of his property under cultivation within 10 years. Upon landing at Jekyll Island, he discovered it was covered by a thick maritime forest hosting alligators, thorny vegetation, and biting insects. Horton left his wife and children in England as he and his indentured servants cleared the land, planted crops, and built a large wooden home.

Carmody explained that in 1742, still engaged in the War of Jenkins' Ear, Spanish forces attacked Saint Simons Island in attempt to seize the Georgia colony. Despite some combat confusion, the British forces managed to defeat the Spanish at the Battle of Bloody Marsh, forcing them to flee south. Retreating Spanish forces from the battle sailed across the sound to Jekyll Island where they burned Major Horton's wooden home to the ground and ravaged the rest of his property. Upon completing this petty revenge, they fled back to Florida. Then, within a few months, General Oglethorpe was recalled back to London to lead other battles in Europe, leaving Major Horton in charge of the colony.

Photo by Peter Dillon

A demonstration garden is next to the Horton House, growing the crops he planted, including hops.

Major Horton also had to rebuild his home and restore his other damaged property on Jekyll Island. This time, his plans included the capability to brew beer. Carmody quoted Jonathan Bryan, a South Carolina planter visiting the area, who wrote in his journal about Horton's property saying, "I was surprised at the extraordinary expense this gentleman must have been at in the settling and improving of this place" with a "handsome dwelling house, a malt house, all these of tabby, and a large brewhouse of wood with all conveniences for brewing." The mention of "tabby" refers to a type of fire-resistant concrete derived from oyster shells, sand, and ash. Once constructed, Major Horton brought his wife and children over from England, and resumed farming about 20 acres, growing barley, wheat, hops, and indigo, among other crops. He raised cattle and eventually supplied all the fresh meat for Fort Frederica.

Carmody explained that archaeological evidence suggests Major Horton also had a well-stocked wine cellar in a tabby building near his house, but no beer brewing artifacts have yet been found. However, written Colonial records show that he had ordered a great copper pot for brewing. Historian June Hall McCash, Ph.D. has uncovered writings from that period confirming that the barley was specifically grown for brewing. She quoted a settler named John Terry who wrote in a letter that Major Horton's barley was intended for the copper (brewing) pot. A visitor to Jekyll Island, John Pye, reported back to the British trustees that Major Horton had harvested a barnful of barley that was "not at all inferior to barley grown in England." She also found in Jonathan Bryan's journal a description of the malt house's dimensions as 80- to 100-feet long by 30-feet wide.[1]

More recently, the Jekyll Island Mosaic Museum staff has successfully grown hops on Major Horton's former land to confirm that growing hops in the colony was possible. Colonial records show that Major Horton delivered his first ale to British troops stationed at Fort Frederica in 1747.

Alas, the brewery was not in operation long. McCash notes that an epidemic spread through Fort Frederica and infected Major Horton in October 1747. His wife nursed him back to health, but the illness left him weak. In late 1748, he traveled to Savannah, Georgia, for a political meeting and caught a serious fever while there. This time, he did not survive and was buried in the city's Christ Church cemetery. That same year, Britain and Spain signed a peace treaty and most of the British troops soon left Fort Frederica. Their departure was followed by an exodus of the civilian settlers. By the late 1750s, the settlement had become a ghost town.

Today, Jekyll Island State Park welcomes thousands of visitors every year. The ruins of Major Horton's house and surrounding property are included in the island's Horton Historic District. A demonstration garden is next to the Horton House, growing the crops he planted, including hops. When the Jekyll Island Mosaic Museum was renovated and updated in 2019, it added an exhibit featuring Major Horton's brewery, which prominently displays a great pot filled with hops. The National Park Service at Fort Frederica National Monument on Saint Simons Island maintains the settlement's ruins, conducts archaeological investigations, runs tours, and hosts a museum, research library, archives, and reenactment events.

Unless you stopped by Silver Bluff's taproom and were lucky enough to sample Jekyll Island Historic English Ale before it ran out, you likely won't be able to try Melvin's interpretation of the original Georgian ale. Though you still have a chance to try it for yourself as the brewery has made the recipe available here.

References:

[1] McCash, June Hall, *Jekyll Island's Early Years: From Prehistory to Reconstruction.* Athens: University of Georgia Press, 2014, p. 66–70.

Silver Bluff Brewing Co.'s Jekyll Island Historic English Ale clone

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.021
IBU = 45 SRM = 14 ABV = 6.4%

"We didn't have any recipes or records of the first beers brewed in Georgia at Horton House, but we wanted to create something that showed how beer in the 18th century could have varied from most beer today . . . The resulting brew is not a true historical recreation, but more of a historically inspired ale designed to give the drinker an idea of the ways in which these Colonial beers tasted very different from beer today."
– William Melvin, Head Brewer

INGREDIENTS

12.25 lbs. (5.6 kg) Golden Promise malt
1.1 lbs. (0.5 kg) flaked oats
1 lb. (0.45 kg) English crystal malt (65 °L)
8 oz. (230 g) English crystal malt (77 °L)
9.6 AAU Magnum hops (75 min.) (0.6 oz./17 g at 16% alpha acids)
2.5 oz. (71 g) East Kent Golding hops (0 min.)
Omega Yeast OYL-016 (Extra Special), Wyeast 1968 (London ESB Ale), White Labs WLP002 (English Ale), or LalBrew Windsor yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Use enough water to have a moderately thick mash (1.4 qts./lb.). Mash the malts at 153 °F (67 °C) for 60 minutes. Raise the temperature to 168 °F (76 °C) and recirculate for 15 minutes. Sparge slowly and collect 6.5 gallons (24.5 L) of wort.

Conduct a hot, rolling boil for 75 minutes, adding the Magnum hops at the start of the boil and East Kent Golding at flameout.

Chill the wort to 68 °F (20 °C), aerate if using liquid yeast and then pitch the yeast and ferment. Near the end of fermentation, conduct a diacetyl rest by raising the temperature to 73 °F (23 °C) for a few days. Then crash cool and force carbonate or prime and bottle condition to 2.5 v/v.

Silver Bluff Brewing Co.'s Jekyll Island Historic English Ale clone

(5 gallons/19 L, extract with grains)
OG = 1.070 FG = 1.021
IBU = 45 SRM = 14 ABV = 6.4%

INGREDIENTS

8.5 lbs. (3.9 kg) pale ale liquid malt extract
1 lb. (0.45 kg) English crystal malt (65 °L)
8 oz. (230 g) English crystal malt (77 °L)
8 oz. (230 g) CaraPils® malt
9.6 AAU Magnum hops (60 min.) (0.6 oz./17 g at 16% alpha acids)
2.5 oz. (71 g) East Kent Golding hops (0 min.)
Omega Yeast OYL-016 (Extra Special), Wyeast 1968 (London ESB Ale), White Labs WLP002 (English Ale), or LalBrew Windsor yeast
¾ cup corn sugar (if priming)

STEP BY STEP

Add crushed grains into a steeping bag and place bag in the brew kettle with 6 gallons (23 L) of water as it heats to 170 °F (77 °C). Remove bagged grains, allowing them to drip drain back into the kettle. Continue heating wort to a boil. Remove kettle from heat and carefully stir in the malt extract. When fully dissolved, return kettle to heat and boil 60 minutes, adding the Magnum hops at the start of the boil and East Kent Golding at flameout.

Follow the remainder of the all-grain recipe instructions.

BY DREW BEECHUM & DENNY CONN

CONSERVING WATER

Ways to reduce your brew day water usage

Despite all the pithy bumper sticker jokes about "Save Water, Drink Beer!" the truth is that brewing beer is a terribly inefficient and water wasteful process. Between growing, cleaning, mashing, sanitizing, chilling — it takes many, many times the volume of water as beer produced.

The usual rule of thumb is 7:1 water-to-beer. In other words, it takes 7 gallons of water to produce 1 gallon of beer (or 7 L water to 1 L beer). A decade ago, MillerCoors made big waves and received accolades by achieving a 3.8:1 ratio while brewing.[1]

To a large brewery, water efficiency equals a large cost savings. And while it may not be as big a deal for us homebrewers, who doesn't want to save money? And that's before you even consider the ecological advantages.

For Drew, that concern lives at the front of his mind because drought is never far away in Southern California. There's very little sense in being any more needlessly profligate than we already are. He's ripped up most of his water-thirsty grass, but still modern "comfortable" life isn't mindful. Even Denny, in what most would think of as "damp Oregon" is experiencing "exceptional drought" conditions.

While we homebrewers will probably never hit the highs (or lows?) of MillerCoors' achievements, there are a few fairly simple and easy things to do to cut down our water usage. These start with reducing water needs, being more efficient with water, and reusing it. Let's go through each in more detail.

REDUCE YOUR NEEDS BEFORE YOU BEGIN

Homebrewing tends to be a muscle memory rote activity. "Fill the vessel up yea high," "Rinse with this much water," "Make this much beer." But as both of us have gotten older there's a time to stop and think — do I really need to make 5–10 gallons (19–38 L) of this beer? The answer often turns out — not really. Better to truly focus on the volume you need and waste less beer, ingredients, and water in the process.

You can also reduce your overall water needs by making an extract batch or two. We've said it many times before that extract beer's "bad" reputation isn't the ingredients' fault — it's the inexperienced brewer with no clue how to manage a ferment or sanitize things correctly! Bonus points for a shorter brew day as well.

BE EFFICIENT WITH YOUR CLEANING

Cleaning is one of the biggest water and energy spends in brewing. It's absolutely vital — you won't catch us pulling that old cheap brew guy mantra of "I've never cleaned my plastic buckets and my beer tastes fine." For our best beer and use of our time, we must keep clean.

You can make your cleaning more water efficient by getting things cleaned early on. Empty a fermenter or a keg? Get that puppy rinsed before things dry and get glued into place! You'll need much less effort and water to get things done that way. (And maybe rinsing your beer glass with another beer counts — or maybe that's too much of that crusty old guy logic!)

The efficiency of cleaning, like all chemical reactions, is driven by factors like concentration, temperature, and agitation. We don't recommend dosing twice your cleaners' directions, that will just lead to more rinsing and other nasty side effects. It is, however, true that a little extra heat (not enough to melt your plastic) can help along with physical agitation, be it scrubbing or other motion. If you don't want to scrub, you could look at a semi-professional solution like all the var-

You can make your cleaning more water efficient by getting things cleaned early on.

Photo by Michael Tonsmeire

After using tap water to chill your wort most of the way, pumping ice water through an immersion chiller is a more water-efficient way to get your wort to yeast-pitching temperature.

ious pump and spray ball gadgets out there to keep your cleaner moving.

Along the same line of thought, not everything needs to be completely immersed in cleaner or sanitizer to get the job done. In fact, the only time that Drew uses a full volume of anything is when sanitizing kegs. He uses a full volume of Sani-Clean so that when he pushes it out via CO_2 it makes his kegs well purged of oxygen.

Also, we know that it's hard to resist, but as long as you're using a no-rinse sanitizer in proper concentrations — don't rinse! Those foamy bubbles aren't going to impact your beer.

In terms of efficiency, it's hard to beat the idea of stacking things up and doing stuff in a row. This is easy assuming you've rinsed your kegs/carboys/fermenters and got a stack of things to go through. For Drew, he'll stack kegs up by the fours, roughly, and then run the kegs in sequence. Using a single batch of cleaner or sanitizer to get through everything is just a smart plan.

CHILL OUT TO SAVE

Outstripping all other uses of water during the brew day is the final act: The chilling. Turns out that it takes a fair amount of water to take a batch of beer from near boiling to pitching temperatures.

And we can't talk about saving water and chilling without first mentioning the easiest way to reduce water usage — embrace the no-chill methodology and don't chill! While it may feel outrageous in the face of every "good modern practice," you should remember that force chilling beer is a relatively new practice in the history of beer making. And before quick chilling, lager brewers used coolships and Baudelot chillers to brew clean beer. The notion that coolships are only for funky beers is bunk, as the history of Pilsner-style beer clearly shows.

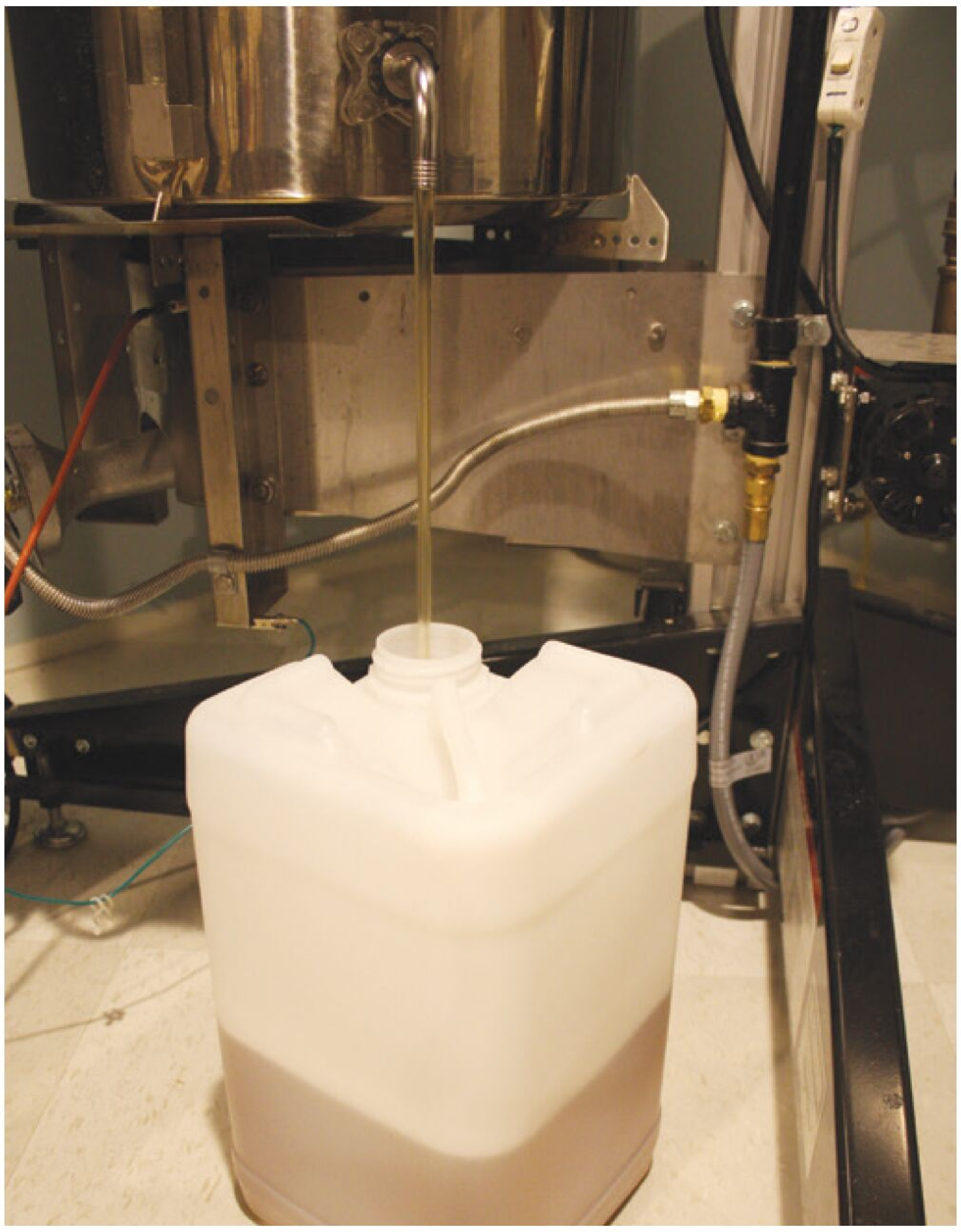


Photo courtesy of Dave Louw

In Australia, fresh wort kits for homebrewers are popular. Hot wort is collected in HDPE cubes and cools naturally before being sold — no chilling involved.

You don't have to embrace the full funk life and emulate lambic brewers with shallow trays allowing overnight chilling (and partial addition of wild yeasts and bacteria). You can follow the modern examples from Australia and use a 5-gallon (19-L) HDPE water cube. Fill the clean cube with the hot wort, push out any excess air, and cap it. Let the wort cool naturally overnight in its relatively safe hot pack state. When cooled, pour the cube into a fermenter and pitch your yeast. What you need to keep in mind when doing this is the amount of time your hops will be in contact with hot wort. Drew usually treats everything like it's been boiled for 30 minutes longer than it was in the kettle — so for a hop addition intended for boiling 60 minutes, he'll add the hops at the 30-minute mark (while maintaining the full length of the boil). And before you go "but, but that will make terrible beer," we enjoyed a great number of Australian homebrews made this way on our trip there a few years back and they were great beers!

When chilling the beer, look at how far and fast you can go with the least amount of water. If you have a way to chill your fermenter, you don't even need to chill the batch all the way. We both have glycol-chilled fermenters, but Drew doesn't have Denny's stupidly cold well water, instead dealing with tap water at temperatures in the 70s (low- to mid-20s °C) during a SoCal summer.

Since chilling becomes less effective as the wort temperature approaches the chilling water temperature, Drew doesn't even try and get the wort below 90 °F (32 °C) during the summer. Instead, once the tap water significantly slows cooling of the wort, he transfers the wort to his sanitized fermenter and starts the cooling jacket. With 24 °F (-4 °C) glycol flowing around the beer, it's typically to low 60s °F (16–17 °C) pitching temperature in 30 minutes or so — just enough time to finish the cleanup!

Or, if you choose to pitch a kveik yeast, after chilling to 90 °F (32 °C) you're done — pitch and start your cleanup.

If you're dead set on your wort being chilled as soon as possible, you can improve the temperature differential of water vs. wort by taking a cue from professional breweries with their cold liquor tanks. Refrigerate a sizable volume of water ahead of time and then use a submersible pump (or put the water in kegs and push it).

If you're using an immersion chiller, chill the beer first with your tap water and then as chilling slows down (~100–120 °F/38–49 °C), switch to the chilled water to drive the chilling to its conclusion. Stirring, recirculating with a pump, or even just lifting the coil periodically will also greatly improve your chilling time as you break up the layer of cooler wort that develops around the coils.

If you're using a counterflow chiller, you can do what Drew used to do back in the day and send the output of the chiller (on tap water) into a simple immersion coil sitting in a bucket of ice water and then from there to the fermenter. And to that point, ice is your friend. If you don't want to mess around with large volumes of water in a fridge, just make a big ice bath and use that. One of Drew's friends in his homebrew club owns a giant ice machine and uses its output to drive his brews to completion.

Again, the whole point is to get the temperature differential as high as you can for as long as you can to get your beer chilled faster and use less water. If you're very technically adept and have a fairly sizable glycol chiller, you could force circulate cold glycol through the chiller to drop the temperature. However, the typical homebrew-sized chiller is inadequate for this purpose and it's much simpler to run water/ice water and then chill down with refrigeration or a big water bath.

DON'T RUN DOWN THE DRAIN

After you've found ways to reduce water consumption, the last thing to think about is reusing/recycling it, which is fairly easy. As you're chilling, capture the water and save it for another use. The first good reason to do this is to actually get a sense of how much water you're using. It's incredibly important to know just how much water you're running out to know whether or not you're making improvements.

If you're a hardcore dedicated brewer, the easy answer about what to do with the water is make another batch of beer! Just about any brewery that's wanting to save money and sewer bills will capture their chilling output and save it for the next batch of beer. This is easy to do when your next brew day is tomorrow, so it's often not the most practical step for homebrewers — but keep it in mind. Bigger brewers on 24/7 brew cycles will actually take advantage of the heating of the chilling water to get the next batch going with less delay. Assuming you're not brewing another batch yet, look around at your household to-do list and find places that you can reuse the water.

- Clean the brew gear. Your mash tun won't clean itself! Don't you have kegs or bottles that need a once over?
- Fill your laundry machine — works great with top loaders.
- Wash the cars/dogs/cats/horses/pygmy elephants/kids.
- Fill your pool or pond.
- Let it cool and water the lawn/garden/house plants.

OK, these are just a few thoughts about water efficiency with brewing. No, we'll never be as ruthlessly efficient as the big guys. We don't have the same motivation and return on our efficiency and no one is pretending that doing all of these steps will save the environment for humanity, but a great many of these things are simple to implement and can save you time (no-chill/refrigeration after chilling part way), some will even scratch that gamer and engineer's min-maxing itch as you try and set a land speed record for chilling a batch of beer!

Reference:

[1] Walsh, B. (2013) "At the farm and the brewery, MillerCoors gets more beer to the barrel with water efficiency." *Time*. Available at: https://shorturl.at/8Gmcu

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LAST CALL

BY GUY MANCHESTER

THE HOPPINESS PROJECT

Helping dementia patients through beer

In the summer of 2020, I was running a gardening session for older people in a care home as part of my job with Alive Activities, a Bristol, U.K.-based charity dedicated to improving the quality of life for the elderly and their caregivers. At the end of the session, a conversation arose over a cup of tea about things we'd like to grow together in the garden. Quick as a flash, one of the residents quipped, "I'd like to grow beer!"

I didn't realize it then, but at that moment The Hoppiness Project was born: A series of sessions to be run in care homes based around hops, pubs, brewing, and drinking culture, culminating in the production of a fresh-hopped beer.

Fast forward to a chance encounter with a researcher at the University of Bristol, which led to a proposal to take the idea wider — into care homes specifically for people living with dementia. The more we thought about it, the more it became clear that this idea had the potential to profoundly positively impact the well-being of those taking part.

The result of our collective efforts — Backyard Bounty, a malty 4.2% golden ale — was a hit with residents and is now on sale at pubs across the U.K.

Photo courtesy of Alive Activities

Through the Hoppiness Project, elderly folks with dementia living in care facilities plant, care for, and harvest hops that are later brewed with.

The idea was pitched to the University of Bristol's Brigstow Institute and a grant was secured, which included research elements exploring what older people living in care homes enjoy and want to do with their time, as well as how sensory play, socializing, reminiscence, therapeutic horticulture, giving people a sense of agency, and connecting those living in care homes to their local community can be practical therapeutic tools for residents living with dementia.

We collaborated with local community group Bristol Hops Collective — a network of hop growers across Bristol — and Left Handed Giant, a brewing company in the city, to ensure the project's success. Left Handed Giant also hosted the care homes for a brewery tour and tasting session — an incredible experience that people talked about for weeks after!

Sessions follow the life cycle of the hop plant itself, so we begin in spring, introducing the project with a reminiscence-heavy session — photos to stimulate memories alongside other beer and pub-related memorabilia — as well as some dried hops to touch and smell. In the next session, we plant a hop rhizome and propagate more plants from cuttings. We make sessions as accessible as possible, always offering seated activities such as making hop and lavender bags. By popular request, every session ends with us sampling some beer and singing drinking songs as a group.

Through media attention we have been able to disrupt preconceptions and stereotypes around care homes and dementia — and the usually negative news cycle agenda around these things.

Alcohol plays a significant part in the lives of many adults in the U.K. There is a tendency for care home residents to be infantilized, which means they have less agency around food and drink: Talk and reminiscence about beer and pub culture offers a way of exploring different parts of people's lives and identities without censorship.

The result of our collective efforts — Backyard Bounty, a malty 4.2% golden ale — was a hit with residents and is now on sale at pubs across the U.K.

Alive Activities looks forward to taking the project to more care homes next year, with the ultimate goal of creating a beer made exclusively with hops grown by care home residents. We'd also love to see the project recreated by others across the U.K. and even further afield; and to that end, we've created a downloadable practitioner's activity pack that guides people through the process of delivering each of the sessions. It can be found on our website: https://hoppiness.blogs.bristol.ac.uk

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